Chemical Week

May 11, 1957

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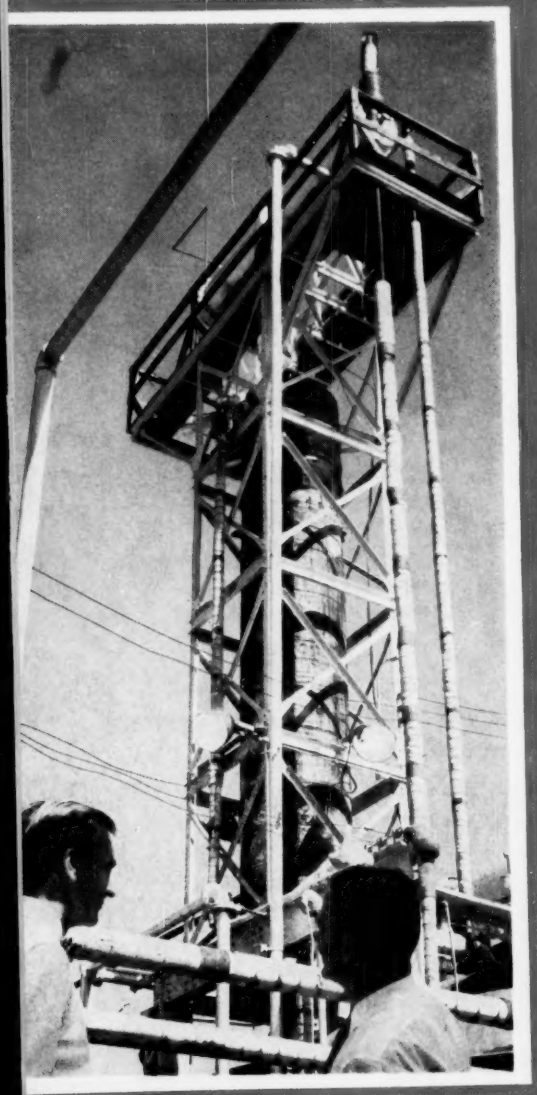

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Clearly different is the sample of compounded PLIOFLEX—the lighter colored synthetic rubber – pictured above. It's the first time ever that such transparency has been achieved in rubber. And what a host of possible uses it brings to mind – shoe soles, hose, tubing, toys, housewares, novelties.

Easier said than done, however, was finding the right combination of materials to produce this "clear" compound. Over 700 formulations were evaluated before success was realized. And of all the rubbers and pigments tested only combinations of PLIOFLEX 1778 and a silica pigment, HI-SIL 233, permitted the maximum transparency for both hard and soft products.

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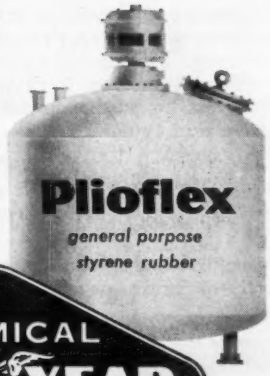

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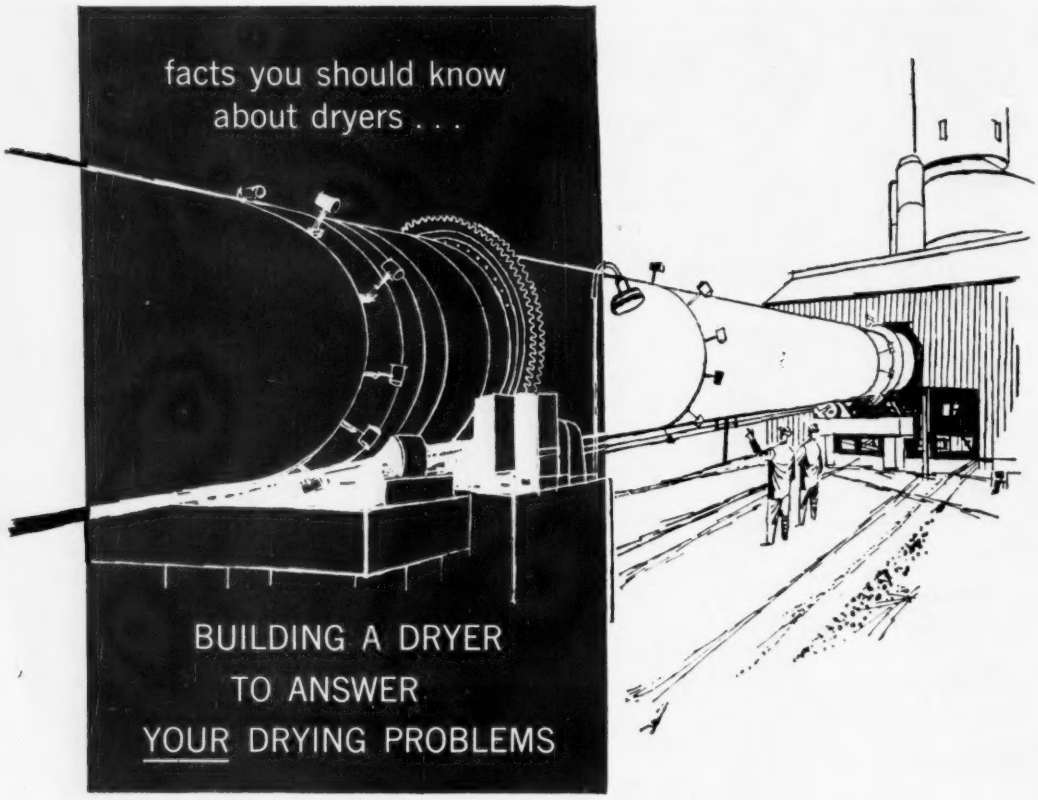

For over 55 years, Louisville Dryers have been solving industry's drying problems and effecting marked economies. The following is intended as an introduction to selecting the right type of dryer.

Q. *Since my required production capacity indicates a continuous dryer will give lowest drying cost, which design is best for my purpose?*

A. Assuming the material is in bulk form, a rotary type dryer is best for your purpose. It is almost axiomatic that materials suited to drying in rotary dryers are dried at lowest *overall* cost in that type.

Q. *If I consider a rotary dryer, should it use high temperature furnace gases or low temperature warm air to dry my material?*

A. This will depend on your particular material, for instance—

1. The temperature to which it can be heated without injury.
2. The amount of moisture in the wet material.
3. The material temperature necessary to dry the material to the desired final moisture content.
4. Whether or not the material will be contaminated by contact with combustion gases.

Q. *I think my material will not be injured by gases from an oil furnace. Should I use a parallel or counter current rotary dryer?*

A. This will depend on a number of considerations, such as:—

1. Is the material flammable?
2. How dry must the product be?
3. Is the dried product dusty or is it granular with very small percentage of "fines?"
4. Will "case hardening" occur in high temperature atmosphere inhibiting uniform and complete drying of large lumps and particles?

Q. *There seems to be quite a number of conditions affecting the selection of the proper dryer type.*

A. Very true. And the conditions involved are not all included in the above discussion by any means.

Q. *How can I be sure of making the proper choice?*

A. An experienced drying engineer knows how to evaluate the various conditions involved in each drying problem and will make a sensible recommendation. If advisable he will also recommend pilot plant tests to confirm his conclusions.

Q. *How can I obtain such advice?*

A. Submit your problem to General American. An analysis and recommendation by a LOUISVILLE engineer entails no obligation on your part.

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Chemical Week

TOP OF THE WEEK

May 11, 1957

- **State corporation tax laws are being changed** by legislators, and the changes may well affect the expansion plans of various chemical process firms .....p. 48

- **Texas floods curtailed some chemical production;** but through advance planning, most plants stayed high and dry .p. 23

- **Standard Oil of California consolidates its chemical setup.** Here's the reasoning behind the integration .....p. 24

- **Salesmen's associations expand their scope,** add professional activities to their social calendars .....p. 57

- **Fluorinated organics resistant to 1000 F temperatures?** That's the hope of these Florida researchers .....p. 84

you can judge

the comparative values of furnace design

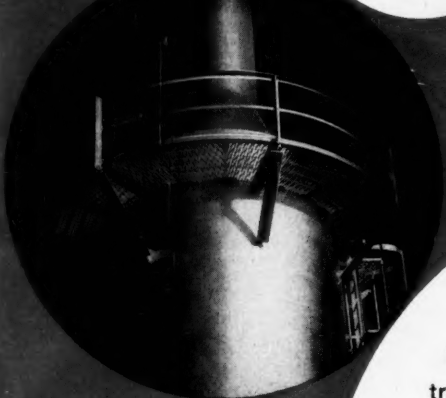
as applied to operating requirements.

It's quite simple

there are 9 basic factors

which must be evaluated

to obtain the full comparison of values



1—Average radiant transfer rate. 2—Maximum deviation from average radiant transfer rate. 3—Average and maximum transfer rate in convection section. 4—Maximum tube wall temperature, radiant or convection. 5—Maximum efficiency with specified excess air. 6—Controlled thermal recirculation of flue gases to provide even heat distribution throughout full length of each tube and equalized heat distribution around each tube. 7—Overload and corresponding transfer load. 8—Design to provide: structural column supports · Ladders · Platforms · Tube Removal facilities, etc. 9—Degree of assembly; of the furnace structure and of the heating surface.

Whenever all these 9 specifications are applied to all the operating requirements, you can be sure PETROCHEM ISOFLOW FURNACES will be found most economically desirable.

No other furnace design can claim the recognition and acceptance achieved by PETROCHEM ISOFLOW FURNACES . . . starting with one installation in 1940, January '57 records more than 1650 ISOFLOW FURNACES in operation and under construction—a record that is incomparable just as all Petrochem Isoflow furnaces are more economically desirable by any comparison.

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Sizes made from Pamite have superior efficiency, high brightness, low foaming properties, and excellent handling characteristics.

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If you are not already using size made from Pamite, we would welcome your inquiry.

**Hercules is the acknowledged leader in rosin size and other chemicals for papermaking.*

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FORWARD-LOOKING CHEMICALS
From Hercules research come new products designed to anticipate your needs for improved chemical materials. Whether it is a new grade of size based on rosin or a completely new concept, you can look to Hercules for progressive leadership.

UNMATCHED DISTRIBUTION FACILITIES
Hercules maintains by far the largest number of plants and strategically-located distribution points of any rosin size manufacturer. This is your assurance that the product you want will be delivered when and where you want it.

A SIZE FOR EVERY NEED
Hercules' large number of sizing grades means there is one available to meet practically any requirement. For unusual problems, Hercules can formulate a custom-made grade to fit your specific need. Hercules assures you the lowest possible sizing cost by recommending the right grade for your specific needs.

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The most extensive research and technical service facilities devoted exclusively to papermaking are maintained by Hercules. The Hercules laboratories are always at the disposal of customers in helping to solve sizing and other papermaking problems.

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Hercules has assisted in the industry's progress by designing mechanical improvements and testing equipment. The development and extensive use of the Hercules Automatic Emulsifier, for example, has resulted in major economies in the handling of rosin size.

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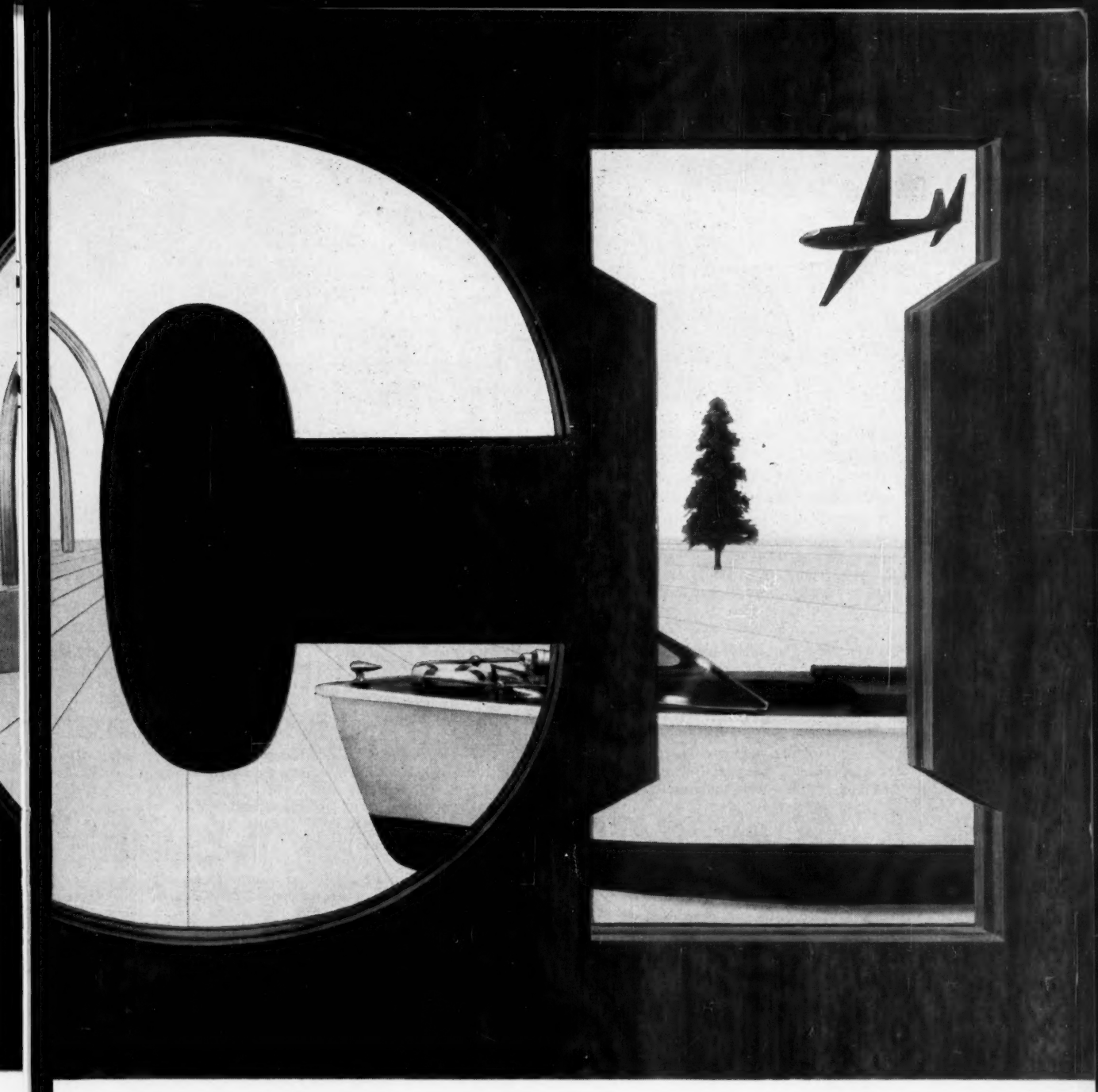
Hercules has pioneered many improvements in rosin size distribution. The freight and handling savings made possible through the introduction of dry size and higher solids paste size, both in tank truck and tank car shipments, are typical examples.

HERCULES POWDER COMPANY
INCORPORATED

LOOK FOR IMPROVED **WOOD** PRODUCTS

THROUGH RCI CREATIVE CHEMISTRY



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Reichhold, a leading adhesive producer, works closely with furniture manufacturers . . . plywood and particle board mills. RCI urea-formaldehyde, phenol-formaldehyde, polyvinyl acetate and resorcinol adhesives – soybean and casein glues – are tailor-made for customer needs.

If you have a problem involving adhesives, write RCI for help in solving it. Or, if you make adhesives, consider Reichhold as a source for your basic raw materials.

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β-Diethylaminoethyl Chloride Hydrochloride (DEC) A granular, tan-colored solid. Nonvolatile, hygroscopic and very soluble in water. For use as a pharmaceutical intermediate, especially in the manufacture of anti-spasmodic agents.

γ-Diethylaminopropyl Chloride Hydrochloride (DEPC) A light tan-colored crystalline solid. Very hygroscopic, and very soluble in water and in most low molecular weight alcohols. Insoluble in nonpolar solvents. For use as an intermediate for introduction of the diethylaminopropyl chain.

β-Diisopropylaminoethyl Chloride Hydrochloride (DIC) A light buff to white crystalline solid. Somewhat hygroscopic, soluble in water, alcohols and organic acids, but insoluble in nonpolar solvents. For use in organic synthesis.

β-Dimethylaminoethyl Chloride Hydrochloride (DMC) A granular, tan-colored solid. Nonvolatile, hygroscopic, very soluble in water. For use in the manufacture of antihistaminics and other pharmaceuticals, and for organic synthesis.

β-Dimethylaminoisopropyl Chloride Hydrochloride (DMIC) A granular, tan-colored solid. It is nonvolatile and hygroscopic. For use in the manufacture of analgesics and other pharmaceuticals and other potential uses in organic synthesis.

γ-Dimethylaminopropyl Chloride Hydrochloride (DMPC) A white crystalline solid. Essentially nonvolatile, hygroscopic and soluble in water. Used for pharmaceutical and organic synthesis. Available exclusively from Michigan Chemical.

ρ-Bromochlorobenzene An almost white crystalline solid with a characteristic aromatic odor. Slightly soluble in cold, but very soluble in hot ethyl alcohol. For use in organic synthesis, as a pharmaceutical intermediate and in synthesis of insecticides.

Trimethylene Chlorobromide A colorless, clear liquid with a sweet odor. For use as an intermediate in manufacture of cyclopropane and other pharmaceuticals. The greater reactivity of the bromine atom makes it specially useful in preparation of gamma-chloropropyl compounds.

Hydrobromic Acid A clear, amber colored, fuming liquid with a strong pungent odor. For use as an organic intermediate, and useful for the manufacture of dyes, drugs, perfumes and photographic chemicals. Available in 48% and 62% concentrations.

Ethyl Bromide A clear, odorless, volatile liquid with a pleasant odor and a sweet taste. For use in organic synthesis, as a pharmaceutical intermediate, as an ethylating agent, a volatile solvent and in the manufacture of dyes, perfumes and anaesthetics.

Phosphorus Tribromide A colorless or slightly yellowish, clear liquid with a sharp odor. Fumes on exposure to air, reacts violently with water. Used as a brominating agent, especially for alcohols without rearrangement, as a catalyst and as analytical reagent.

Monobromobenzene A clear, colorless, heavy liquid with a sweet aromatic odor. Practically insoluble in water but soluble in alcohol or ether. Used as a pharmaceutical intermediate.

Tetrabromophthalic Anhydride A pale yellow crystalline solid containing 68.9% bromine. An intermediate for the manufacture of fire-retardant resins, plastics, waxes and paints. Reacts with alcohols to form the corresponding half esters.

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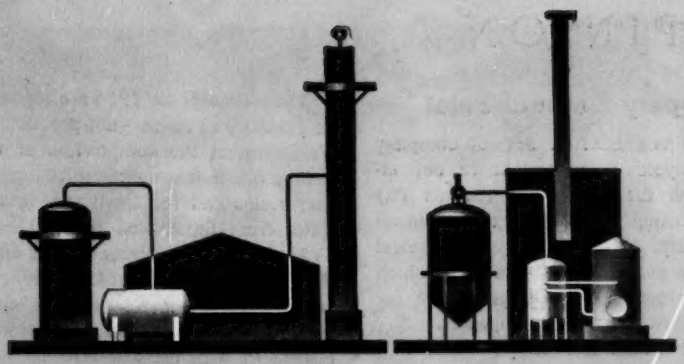
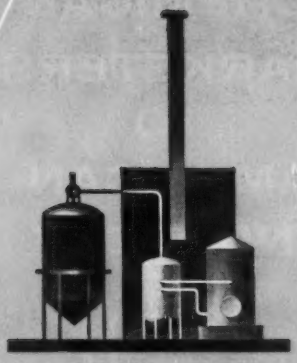


General Tire and Rubber Company

This integrated plant for the production of 25 million lbs/yr. of monomer and polymer was the first American plant based on SD's vinyl processes.



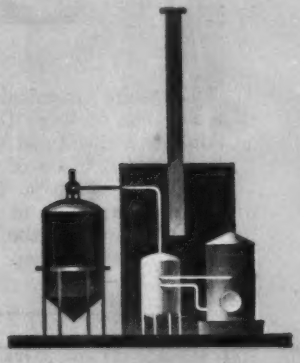
Borden Company

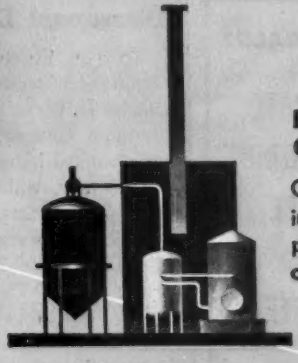
Located in Leominster, Mass., this plant was designed by SD and constructed by SD Plants, Inc.

PVC Monomer and Polymer Plants by SD

Thompson Chemical Company

This Hebronville, Mass. PVC plant was designed by SD and went on stream in 1956.





Eleonora Chemical Corporation

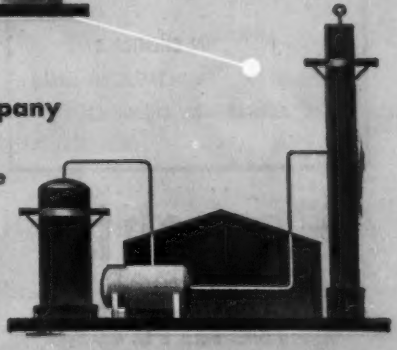
Completed by SD Plants, Inc. in 1956, this Passaic, N. J. plant is producing PVC at the rate of 10 million lbs/yr.

Cary Chemicals, Inc.

SD Plants, Inc. will finish this Flemington, N. J. plant during the summer. Production will be about 12 million lbs/yr.

Diamond Alkali Company

SD is now designing a 50 million lbs/yr. vinyl chloride monomer unit to be located at Diamond's Deer Park plant, near Houston, Texas.



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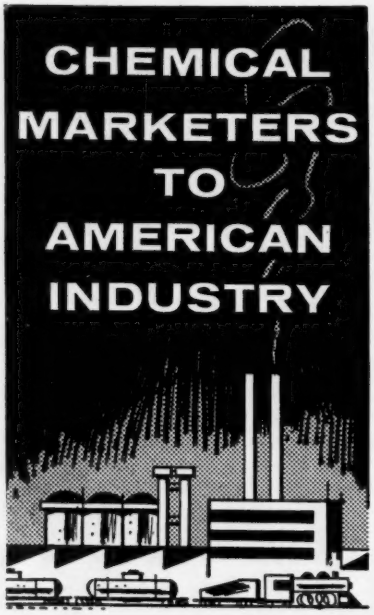

Berkshire Chemicals Inc. is now a Division of Vitro Corporation of America and will add Vitro products to its present line of materials for American industry. This arrangement is expected to benefit both organizations and the thousands of customers they serve.

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OPINION

Slippery Decimal Point

TO THE EDITOR: Several company employees have brought to our attention the fine article (*March 16*) concerning earnings in the chemical industry. Pittsburgh Coke & Chemical Co. is included in the table in which you present the earnings picture for some 34 chemical companies.

We would like to point out that the change in our company's net earnings between 1955 and 1956 was actually an increase of 27% rather than 2.7% as stated by CHEMICAL WEEK. In 1956, net income amounted to $3,921,000, compared with $3,093,000 in 1955.

I hope that you will pass along to your writers our vigorous but understanding protest over the sudden disappearance of nine-tenths of the progress we made last year.

PUTNAM B. MCDOWELL
Assistant to the President
Pittsburgh Coke & Chemical Co.
Pittsburgh

Our apologies to PC&C for not keeping a close watch on our decimal point.—ED.

Discrepant Data

TO THE EDITOR: We in Koppers obtain considerable assistance from CHEMICAL WEEK, with its prompt and thorough coverage of happenings in the chemical industry. In the interests of accuracy, which is of importance to all your readers, I am drawing your attention to discrepancies in your table "U.S. Output of Plastics and Resins" in the article "Plastics: The Big Picture" (*April 6*), in which estimates for 1956 derived from a graph presented in my talk at the CCDA annual meeting in New York.

The estimates for 1956 are for sales of plastics and resins—not production. Furthermore, the composition of the coumarone-indene and petroleum polymer resins and for alkyd resins must differ from those used for the years 1953 through '55. Probably the main difference is the fact that I had grouped certain rosin resins with the coumarone-indene and petroleum resins, instead of with the alkyd resins, and I believe that this will explain the apparent discrepancies in these groups between the years 1953-'56.

B. J. C. VAN DER HOEVEN
Vice-President and General Manager
Koppers Co., Inc.
Chemical Division
Pittsburgh

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: H. C. E. Johnson, Chemical Week, 330 W. 42nd St., New York 36, N.Y.

Complicated Polyethylene

TO THE EDITOR: There are three comments I would like to make in reference to your report on plastics (*April 6, p. 113*).

1. On p. 114, the report notes an addition of low-pressure polyethylene capacity to high-pressure polyethylene capacity. The implication that I read into this sentence is that low-pressure polyethylene and high-pressure polyethylene are almost completely competitive materials.

It has been our finding that the two types of polyethylene are extremely different materials, and there is only a slight overlap in the various spectra of the uses of the two materials. In fact, the overlap in end-uses is much greater between the vinyls (or polystyrene) and low-pressure polyethylene.

Since this is the case, it is rather difficult to add the huge overcapacity that is indicated for low-pressure polyethylene to a moderate overcapacity for high-pressure polyethylene and come up with the conclusion made in your report.

2. The next paragraph in your report asks the question: "Can the industry triple—or even double—polyethylene sales in four years?" It is of interest that polyethylene production nearly quadrupled in the years 1953-56, according to the tabulation on p. 113. Thus the question becomes: When will this rate of expansion stop?

3. You have listed (*p. 114*) a timetable for the introduction of plastic parts. Such a timetable has some de-

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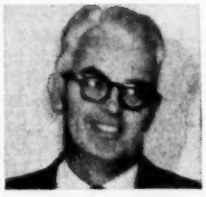

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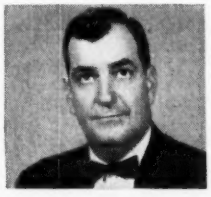

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gree of possibility, but the various building codes and the labor unions will probably move this timetable ahead about 10 years. Also, the National Board of Fire Underwriters has an aversion to flammable plastic.

HERMAN W. ZABEL
Executive Vice-President
Roger Williams Technical & Economic Services, Inc.
Princeton, N.J.

Some good points. But a complicating factor is that high-density polyethylene made in high-pressure plants pproaches the low-pressure material in properties. Thus, high-pressure capacity can to some extent supplement low-pressure capacity.—ED.

MEETINGS

Commercial Chemical Development Assn. in cooperation with Asst. Secy. of Defense (research and engineering), spring meeting; theme: what the rocket and missile program means to chemical industry; French Lick, Ind., May 12-14.

Electrochemical Society, Inc., 111th meeting, Hotel Statler, Washington, May 12-16.

Chlorine Institute Inc., spring meeting, Seaview Country Club, Absecon, N. J., May 13-14.

U.S. Atomic Energy Commission, inter-American symposium on the peaceful applications of nuclear energy, Brookhaven National Laboratory, Upton, L.I., May 13-17.

Armour Research Foundation of Illinois Institute of Technology and Nucleonics Magazine, second industrial nuclear technology conference, Chicago Museum of Science and Industry, May 14-16.

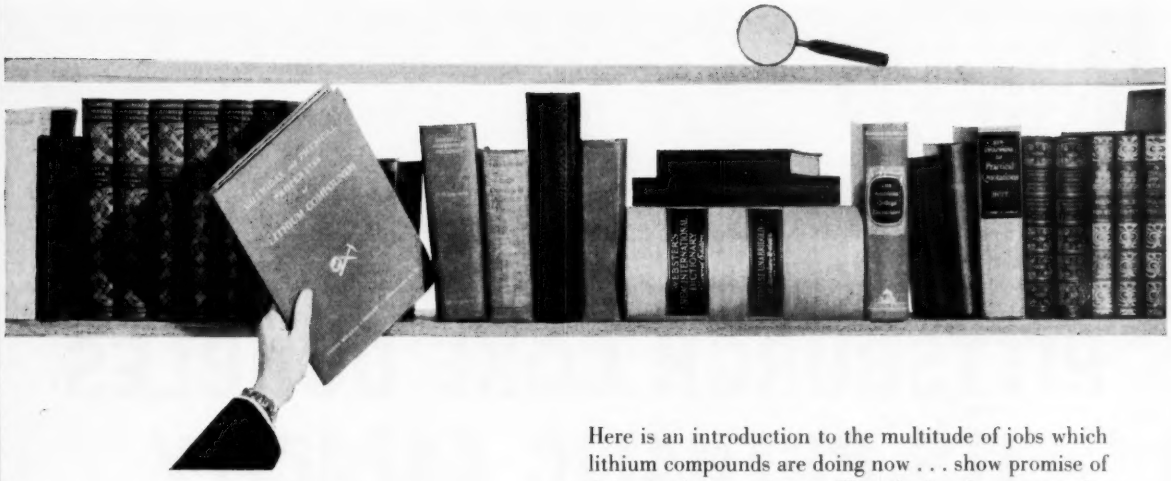
American Chemical Society and Chemical Institute of Canada Rubber Divisions, conference, Mount Royal Hotel, Montreal, May 15-17.

Southern Research Institute, symposium on current developments in the rocket and missile field, Birmingham, May 16-17.

New York State Society of Professional Engineers, engineering industries exposition, Statler Hotel, New York, May 16-18.

American Institute of Mining, Metallurgical and Petroleum Engineers; theme: Melting and Solidification; Hotel Statler, Boston, May 17-18.

Technical Assn. of the Pulp and Paper Industry, 8th annual coating conference, Hotel Pfister, Milwaukee, May 20-23.



A DICTIONARY OF USES FOR LITHIUM CHEMICALS

past . . . present . . . future

Here is an introduction to the multitude of jobs which lithium compounds are doing now . . . show promise of doing in the near future. Though there's no space for them here, there *are* further details . . . and they *are* available. Let us know which compound or which job you're interested in, and we'll send you whatever data Foote has relating to your field of interest. Write the Technical Literature Department, Foote Mineral Co., 420 Eighteen West Chelten Building, Phila. 44, Penna.

absorbent (CO_2): lithium hydroxide

air conditioning: lithium bromide; lithium chloride; lithium chromate; lithium molybdate

baths (heat treating): lithium fluoride; lithium chromate

battery (alkaline electrolyte): lithium hydroxide monohydrate

catalyst (crystal formation, esterification): lithium carbonate

catalyst (polymerization; reduction): lithium metal

ceramic (enamels, frits, glazes, etc.): lithium carbonate; lithium chloride; lithium fluoride; lithium nitrate

ceramic (raw material) lithium carbonate; lithium fluoride; lithium hydroxide monohydrate; lithium borate

coating (lens): lithium fluoride

coating (welding rod): lithium carbonate

conductivity* (increasing of electrolytes, fused salts): lithium chloride

coolant: lithium chloride; lithium metal

corrosion inhibitor: lithium bichromate dehydrate

cosmetics: lithium stearate

crystals (optical): lithium fluoride

dehumidifier: lithium chloride

de-icer: lithium chloride

dispersing agent: lithium citrate

dispersion stabilizer (deflocculant, ceramic): lithium citrate

electrolyte: lithium hydroxide

explosive:* lithium chlorate; lithium nitrate; lithium perchlorate

fillers* (rubbers, plastics): lithium aluminum silicate

flux (ceramic): lithium fluoride

flux (soldering): lithium borate

flux (welding and brazing): lithium chloride; lithium fluoride

freezing point depressant: lithium chloride

fuel*: lithium hydride; lithium metal

grease: lithium hydroxide monohydrate; lithium stearates

heat (transfer medium): lithium chloride; lithium metal

mud* (oil well drilling conditioner): lithium phosphate

nuclear material*: lithium metal

oxidizing agent*: lithium bichromate dehydrate; lithium chlorate; lithium chromate; lithium perchlorate

pharmaceuticals (production of): lithium carbonate; lithium chlorate; lithium citrate; lithium metal

plating reagent: lithium citrate; lithium cyanide; lithium hydroxide

pyrotechnics*: lithium chlorate; lithium nitrates; lithium perchlorate

reducing agent: lithium hydride; lithium aluminum hydride; lithium borohydride; lithium metal

scavenger (metallurgical): lithium metal

solder (silver): lithium metal

suspension stabilizer: lithium citrate

* You may very well be the *first* to take advantage of this potential use for lithium compounds.

Foote MINERAL COMPANY

RESEARCH LABORATORIES: *Beruyn, Penna.*
PLANTS: *Cold River, N. H.; Exton, Pa.; Kings Mountain, N.C.; Knoxville, Tenn.; Sunbright, Va.*

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PITTSBURGH COKE DOUBLES ITS PHTHALIC CAPACITY

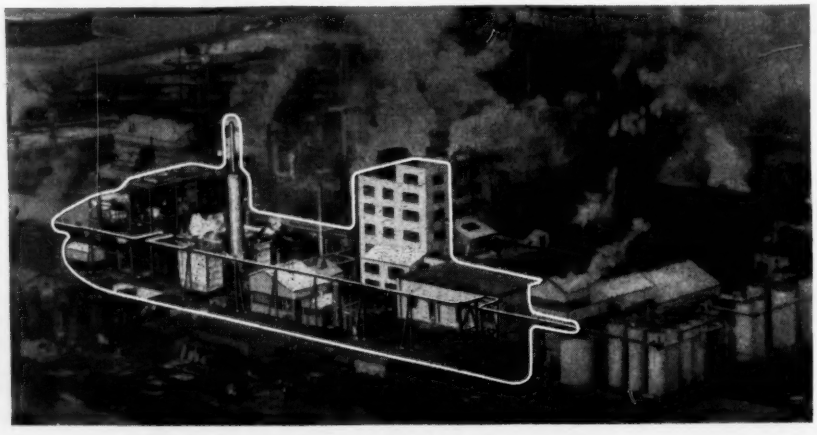
Lummus Engineers and Constructs $3 Million Plant

The recent start-up of Pittsburgh Coke & Chemical Co.'s new phthalic anhydride facilities marks another step in this company's expansion in the chemical field. Engineered and built by The Lummus Company, the new plant was integrated with existing facilities of the company's Industrial Chemicals Division on Neville Island in the Ohio River below Pittsburgh.

Since the new plant was an expansion of existing facilities, interference with current production during construction had to be kept to a minimum. This was done by close coordination between Pittsburgh Coke and Lummus engineers at all stages of the job.

The plant has a number of outstanding features. The Lummus-designed instrumentation system includes thermocouples which – at the push of a button – in the control room – travel to any desired point in the reactor as indicated on the control board. This instrumentation permits convenient checking of temperatures throughout the reactor bed. Molten salt circulated around the reactor maintains the desired temperature of reaction.

Current Lummus projects include plants for the manufacture of ethylene, ethylene oxide, pulp and paper, beryllium metal, ammonia and food products. Every Lummus project reflects the experience of many specialists in the process fields. This experience is ready to work for you – to design, engineer and build new or expanded facilities. If you have such a project in mind, discuss your plans with Lummus.



The Lummus Company, 385 Madison Avenue, New York 17, New York. *Engineering and Sales Offices and Subsidiaries:* New York, Houston, Montreal, London, Paris, The Hague, Bombay. *Sales Offices:* Chicago, Caracas. *Heat Exchanger Plant:* Honesdale, Pa. *Engineering Center:* Newark, N. J.

Outlined in white are the expanded phthalic anhydride facilities engineered and constructed by Lummus for Pittsburgh Coke & Chemical Co.

Business Newsletter

CHEMICAL WEEK
May 11, 1957

Is multicity cooperation on air pollution the answer to control problems (*see also p. 24*)? Officials from the Indiana cities of Gary, Hammond, Whiting, and East Chicago will work out a unified air pollution ordinance. (Only East Chicago has one now.) After it has been approved, Chicago will try to match its ordinance to that of the four Indiana cities.

•

Dow's bid is high for the Velasco, Tex., magnesium plant. (The plant is owned by the government, but operated by Dow.) Its bid, of $19.4 million, was considerably over the ones made by Velasco Magnesium Corp., which offered $16 million or $10 million depending on method of payment. General Services Administration has 60 days to consider the proposal, which is also subject to approval by the Defense Dept. and to antitrust review by the Justice Dept.

As in the case of rapid tax write-offs for new liquid oxygen/nitrogen plants (*see also Washington Newsletter*), the Justice Dept.'s attitude could have an important bearing on the sale. Dow sought to buy the 88 million lbs./year plant three years ago for $13.5 million, but the Justice Dept. then held the sale would "tend to maintain a position inconsistent with the antitrust laws." Since then, however, a second company has announced its entry into magnesium production.

•

Foote Mineral Co. is seeking a New York Stock Exchange listing for its common stock. Board Chairman Gordon Chambers revealed the plan to shareholders at the firm's annual meeting, along with the news that Foote set a sales record of $6.7 million for the first quarter of '57. Earnings were $622,236, up 22% over the same period last year.

Sales down, but profits up (not down, as reported in *CW* last week). That's the unusual first quarter position of Pittsburgh Coke & Chemical, which recorded a $908,000 earnings mark, with sales of $13.6 million (*CW, May 4, p. 20*).

Sales records are being set by German firms, too. Badische Anilin- und Sodafabrik (BASF) reports its '56 sales were $357 million, up 10% over the '55 mark. The BASF rate of growth is above the average of West German firms, although its percent of the total West German chemical export business was somewhat lower.

•

Will Monsanto stay in the household detergent business? There has been some talk that the firm is considering stopping production of All and Dishwasher All. But Monsanto tells *CW* that in spite of "difficulties in maintaining normal profit margins with a two-product line," it intends to continue production of the two materials, is "continuously studying" the syndet situation. One possibility: more products.

Business Newsletter

(Continued)

A strike and price-fixing charges plague Parke, Davis this week. The strike of 300 machinists (International Assn. of Machinists Local 1288)—made more crippling by the fact that 1,700 production workers (Oil, Chemical & Atomic Workers Local 11-176) won't cross the picket lines—has halted pharmaceutical production in the firm's Detroit plant. Manufacturer of chloromycetin and other drugs was stopped, as was final packaging (not production) of Salk vaccine.

Contracts with both unions ran out last Wednesday night; the machinists struck, and, although state and federal mediators sought to prevent it, the OCAW organized employees won't work either. IAM employees seek protection from an "outside contractors clause," which they claim has resulted in the company filling overtime jobs and other vacancies with workers brought in by contract with other firms. OCAW employees have signed a new contract with P,D, that they are still respecting the IAM picket lines.

The government has charged P,D with fixing drug prices in Virginia and the District of Columbia. A federal grand jury in Washington returned a three-count criminal indictment, and the Justice Dept. has filed a simultaneous civil antitrust complaint.

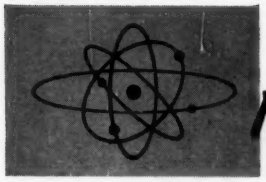
•

Columbia Southern lost its fight for exclusive dredging rights in Nueces Bay near Corpus Christi, Tex., last week, when the Texas Supreme Court upheld a lower court ruling which split dredging rights four ways. The decision isn't likely to affect C-S's ability to get plenty of the mudshell raw material it needs. However, the ruling does encourage other Texas firms that covet a chance to obtain raw materials, the rights to which are sewed up by a single company.

The contract that caused the trouble was negotiated back in 1934. At that time, Texas wanted to have the bay near Corpus Christi dredged, and Southern Minerals Corp. (a precursor of Columbia Southern) wanted the bay-clogging mudshell for its soda ash process. The contract was fully in force until 1940, when 1000 acres of Nueces Bay were removed from the contract by the state. In 1954, more was removed, and in '55, the State ended C-S's exclusive contract, and litigation started immediately. Now, Corpus Christi Shell Co., Heldenfels Brothers, and the General Dredging Corp. are dredging mudshell in addition to Columbia-Southern.

•

Household detergents and waterless hand cleaners provide the best way to remove radioactive decontamination, according to William Friedman, Navy health physicist. Friedman told delegates to the recent National Industrial Health Conference in St. Louis that these two materials were superior to soaps, skin creams and scrubbing agents in washing off the radioactive substances such as might be faced by plant employees who work with radioactive materials, or by residents of an area hit by radioactive fallout.



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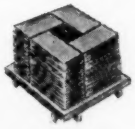
Savings can run to astronomical figures. For instance, in the same space  you store drums with filling capacity of 1600 lbs. you store Foil Walls  with filling capacity of 120,000 lbs. From storage to filling station  your fork trucks will move 37 times for drums to 1 for Foil Walls 

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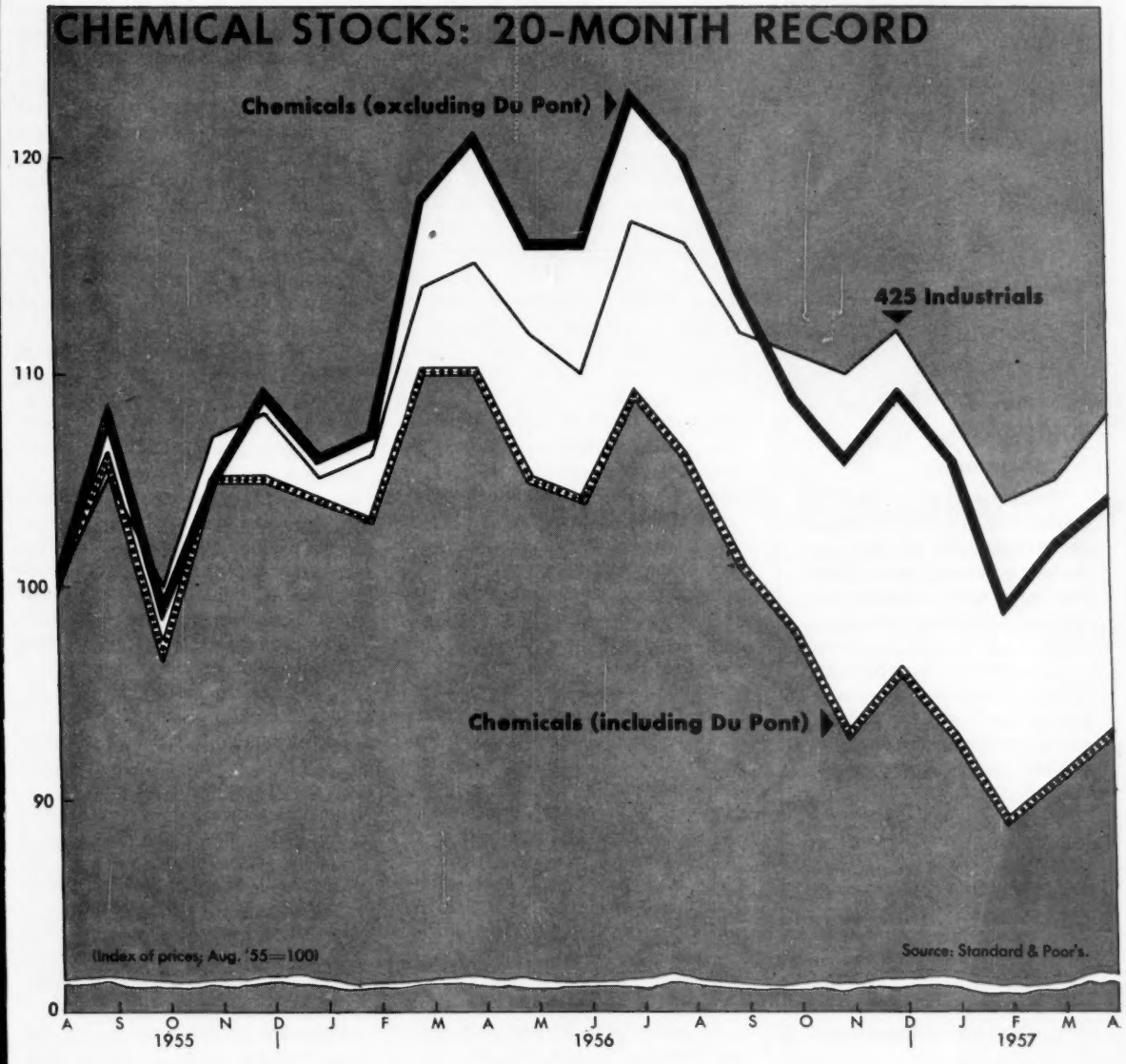
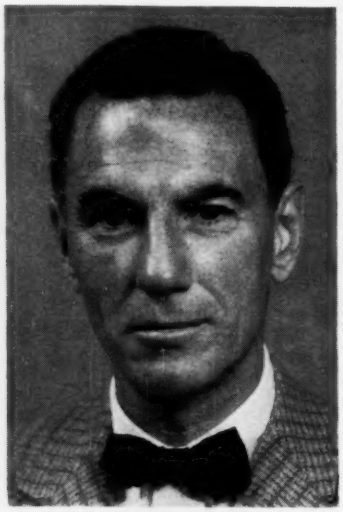


Chemical Stocks: Mirrors of Management

Chemical stock prices again are on their way upward after a protracted downhill movement that started in mid-1956. But, as expected, they're reflecting management's concern with their companies' dwindling earnings powers.

Take Standard & Poor's index of prices, widely considered a representative indicator of the health of chemical stocks (and the industry), for example. It's quite evident that although chemical stocks led the uphill march of the great 1949-57 bull market, they haven't regained eminence since their fall from grace last year (*see graph*).

Significance: The downward revaluation of the chemical stocks offers a somewhat more realistic perspective for chemical management. For the time being, at any rate, management is off the hot-spot of having to answer for earnings that haven't hit the high standards that investors were led to expect from records set



Wall Streeter Tips Management

Management in general has good reason for keeping abreast of performances of its companies' securities, says Frank Brigham (*above*), research manager for the investment house of Cyrus J. Lawrence & Sons. Why:

- Security performance—stability or instability—is a measure of management performance; frequently it's the only measure used by shareowners and the public.
- Direction and degree of change in security value are often direct results of management's clarity in presenting its plans to owners.
- Abrupt price movements are often a tip-off of new competitive developments. Management can do much to allay rumors, which cause unwarranted fluctuations.
- When new funds are needed, securities with a good reputation will incur less marketing expense for the company. Too, sound securities are valuable when considering merger or acquisition possibilities. Equilibrium of securities stems partly from frankness by management in public pronouncements.
- Sound public relations by management helps assure widespread stock ownership and maintenance of working control.

by the stocks in the less recent past.

In effect, what has happened is that chemical stocks are reflecting more accurately the true state of the industry, according to financial experts. The constant touting of the industry during the market's climb tended to bring about overvaluation of some companies' securities, particularly those then showing high price-earnings ratios. Then, as operating costs rose and companies were unable to continue the spectacular short-term results, short-term investors turned their attentions elsewhere. Volume declined and so did prices. Now prices reflect the thinking of long-term investors (*CW, May 4, p. 80*) who still foresee excellent gains from appreciation over a longer pull.

Fundamentally, high yields and fast appreciation of company stocks are strong factors in creating impressions of a company (or an industry) in the public mind. When a company is unable to live up to these impressions, an aura of disappointment surrounds it. Moreover, inflated stock prices and yields tend to discount real gains that are made.

Examples of this effect may be found in such common stocks as those of American Potash, Dow and Atlas Powder, considered by numerous analysts as priced above their worth. Indeed, these stocks are currently playing around the midpoints between '57 highs and lows, and in the case of Dow and Atlas, are heading downward from their all-time highs. American Potash is still within close range of its high of $56/share, within $1.50 of its '57 high and low.

Where the market will go from here, no one cares to predict. Certainly, there's a far more optimistic outlook among investors now than there was three months ago. Too, the chemical stocks are apparently riding out the effects of the past couple of weeks' crises in the Mideast, and seem to have passed their low point of February. It remains to be seen, however, whether company performances will again push the chemical stock indexes back to the level of that for industry as a whole. Judging from chemical management statements that the profit squeeze is showing no sign of letting up, it's a fair guess that chemical stocks won't match their previous records for a long time to come.

States Step Up Pollution War

Water and air pollution abatement, according to recent figures from the Manufacturing Chemists' Assn., is costing the chemical industry from $25-$40 million/year. And the cost is bound to soar even higher as state and local governments continue their campaigns aimed at curbing pollution.

Here are highlights of a *CW* state-by-state survey of legislatures:

Arizona: Now before the state legislature is a bill to permit counties of more than 400,000 population to establish air pollution control districts. It would be governed by a board of five citizens who would, in turn, be advised by a 15-member board consisting of men skilled and experienced in the air pollution field. County supervisors would be permitted to levy a tax of 2¢/$100 of assessed valuation to finance the district's operation. While the bill now applies to only one district, Maricopa County, officials say they'll amend the measure to include other counties that want to participate.

California: Sen. James A. Cobey (D., Merced County) has introduced a bill to form the central valleys air pollution control district. It would include all of the central valleys below the 2,000-ft. level. The proposal calls for an 11-member governing board representing all portions of the area.

Colorado: Rep. Jane Woodhouse (D., Denver) has drawn up a bill to give the state board of health power to establish standards regarding air pollution and also radiation. Warned Mrs. Woodhouse, industrial areas of the state are "on the threshold of a serious problem" of smog.

Delaware: A bill now before the state legislature calls for setting up a nine-member authority that would develop a program to prevent and control sources of air pollution. The state would appropriate $35,000 for the authority, to be spent over a two-year period starting July 1.

Florida: A joint legislative committee has recommended an appropriation of $65,000 for forming a state pollution control agency with regulatory powers.

Minnesota: The state government is now considering a bill granting $25,000 to an interim commission to study the problem of water pollution.

Missouri: Engineers from Kansas and Missouri state agencies are pushing enabling legislation for creating a bistate sewage authority. The jointly operated venture would build sewers and treatment plants for an area encompassing several thousand acres in both states.

In another development, a Missouri state legislative hearing gave strong support to a bill calling for a new state agency to curb water pollution.

Nebraska: Two water pollution control bills are now before the state legislature. One calls for creation of a new state water pollution agency, the other provides tax levies for building sewage systems. Both were favorably reported to the legislature by its public health committee.

New York: The legislature has approved a $550,000 program, proposed by Gov. Averell Harriman, to eliminate air pollution. The appropriation will include $300,000 for health and engineering research and $250,000 to provide technical service to communities throughout the state. The program, unlike an earlier proposal endorsed by the joint state legislative committee on natural resources, would include New York City. Harriman also proposed creation of a new pollution control agency within the state health department along the lines of the present state water pollution control board. However, as it stands now, the new agency wouldn't exercise any regulatory powers for a period of two years in order to provide time for research and recruiting of a technical staff.

Washington: Two identical bills introduced to both branches of the Washington state legislature would authorize cities, towns or counties to form districts for control of air pollution on the local level. The districts would be financed from county tax sources. One of the sponsors, Rep. Gordon Sandison (Port Angeles) declared that the bills "recognize the problem must be met with consideration for employment and industrial development, but contain plenty of teeth to deal with a company that gets out of line."

Wyoming: The state stream pollution advisory council recommended that all Wyoming industries be required to have industrial waste facilities under construction within two years.

WIDE WORLD

END OF DROUGHT: Chemical plants escaped floods, as . . .

Texas Takes a Drenching

Texas chemical men find themselves relieved of flood worries this week. Water, which has been teasing Texans with feast and famine, is now right where chemical men want it: underground, not over the plant.

With flash floods a continuing hazard in Texas, many chemical companies have been uneasy as to their choice of riverside plant sites. Now, following one of the worst floods in the history of the state, they have a much more definite idea as to what is safe and what isn't.

Following seven years of drought, Texas has had, since April 18, cloud bursts, tornadoes, flash floods and steady downpours. Houston had 9.46 in. of rain in April, Dallas had 13.75. Most of the state's 11 rivers have reached near-flood stage or have actually gone over their banks. Damage on the Trinity and Brazos rivers alone has been estimated at $15.5 million.

Only one chemical plant—Ethyl-Dow at Freeport—has had to cut production because of the floods. The plant uses heavy quantities of sea water, and pumps the effluent into a canal. Rate of pumping was lowered to prevent overflowing the canal.

Here's the situation, river by river.

Rio Grande: Rapid rises had subsided. Amoco Chemicals Corp.'s plant near the river's mouth at Brownsville was undamaged.

Lavaca: Receding and well within its banks, it was presenting no danger to Alcoa's Point Comfort works, on high ground above Lavaca Bay.

Brazos: Major flood threats along the upper Gulf Coast were at Liberty on the Trinity River and in lowlands around Freeport. Dow, which sandbagged its Freeport plant, now sees no danger. Freeport is protected on one side by a levee along the Brazos.

Sabine: It reached heights never before recorded, but upstream levees held damage to minor flooding. The Sabine was over its banks at Longview, but the Texas-Eastman plant there was safe on high ground.

Guadalupe: Reaching a crest of 29.5, it flooded lower areas of the southern and western outskirts of Victoria. Du Pont's nylon salts plant at nearby Bloomington was secure on high ground, as was Carbide's Seadrift plant.

Also in no danger of being flooded are plants on the Neches River in the area from Beaumont to Port Neches to Port Arthur; along the Houston Ship Channel (which is fed by short bayous and small rivers); and in Texas City, on Galveston Bay.

The rains were shifting east toward Louisiana, and heavy rains would flood the Red River; bayous, rivers and creeks in that area are already full. Forecasts, however, were for scattered showers only—no dangerous downpours.

Shift on Top

Olin Mathieson Chemical Corp. last week made its first top-level management shifts since the company's formation in 1954. President Thomas Nichols has been elected chairman of the board; Executive Vice-President Stanley Osborne has been named president.

The move accents the spectacular growth of OM's chemical activities under the leadership of Nichols, known in chemical circles as a long-range planner and developer.

Osborne came to Mathieson Chemical Corp. from a vice-presidency of Eastern Airlines in 1950, joining the firm as treasurer. He was later appointed financial vice-president, and in '54, when Olin Industries, Inc., merged with Mathieson, he was made executive vice-president of the international division. He later also became executive vice-president for finance.

Nichols came to Mathieson from a part ownership and vice-presidency in Prior Chemical Co. There he had been a major factor in the expansion of that firm. He was elected president and chairman of Mathieson in '45, remained in that position until the OM merger in '54.

Former chairman, John Olin, will be chairman of the executive committee and of the financial and operating policy committee.

OM'S OSBORNE: In the face of diversity, strong management.

PARKHURST: Overlapping chemical sales mean . . .

Merger from Within

Standard Oil of California's merging of its two chemical segments into a single firm (*CW Business Newsletter, May 4*) is a move to mutually reinforce the oil refiner's chemical enterprises. The new company, California Chemical Co., consolidates Oronite Chemical Co. and California-Spray Chemical Co.—both major subsidiaries of Cal-Standard since the early 1940s.

Oronite, by far the biggest producer of detergent alkylate for the soap industry, and Calspray, one of the top domestic suppliers of pesticides and agricultural chemicals, at first seem widely separated in product lines. "But," explains the new firm's board chairman and a vice-president of Standard, George Parkhurst, "there has recently been a good deal of overlapping." He cites ammonia and nitric acid, now two of Calspray's big-volume items turned out at plants completed early in '56, as chemicals whose markets extend beyond the farm into such industries as explosives, specialities and basic industrial chemicals manufacture.

Oronite was, prior to last year, Cal-Standard's only industrial chemical producer. It makes phenol, phthalic anhydride, polybutenes, oil additives and other petrochemicals besides its biggest seller, the detergent.

But despite mutual interests, the two firms will continue to operate as individual divisions. Research for both will be carried out by California Research Corp., another long-time Cal-Standard subsidiary. California Chemical's board will be the long-range planners, will map out future expansion programs and company policy, but will not basically change either branch's present structure. "This is not very different from other chemical firms," Parkhurst points out, "which have departmentalized segments—each doing something different from the other but all under the parent company."

Several expansions are on the drawing boards for both Calspray and Oronite. "But," says Parkhurst, "nothing too terribly big—that is, no single expansion will cost more than $5 million. However, we do expect sales of both divisions to rise sharply during '57, as these new projects are completed." Combined sales of Oronite and Calspray last year amounted to $103 million.

At present, Calspray has four major producing plants along with 45 dust mills scattered over the U.S. Oronite has only one major plant. But despite the apparent difference in size, each grossed about equal sales last year.

COMPANIES

Allied Paper Corp. stockholders have approved a 2½-for-1 split of the company's common stock. Allied's board chairman, Arnold Maremont, said purpose of the split is to widen ownership in the company so it may be listed on the New York stock exchange.

Shareholders also approved a new issue of 100,000 shares of $50 preferred stock and voted in favor of merging Allied-Albany Paper Corp. into Allied Paper. Allied Paper owns 65% of Allied-Albany stock.

•

Isotopes Inc. (Westwood, N.J.) has formed a new subsidiary, Crystals Inc. (also of Westwood). Facilities for the new firm, including laboratories, production and office space, are now under construction at Westwood.

•

Macco Chemical Co. (Cleveland) will acquire all the outstanding stock of Gates Engineering Co. and its subsidiary, Delaware Valley Steel Works Inc. In addition, Macco will buy a 50% interest in Wilmington Realty Co., organized in 1953 to provide plant facilities for the other two companies.

•

American-Marietta Co. (Chicago) has acquired Guardite Inc. (Chicago), producer of industrial machinery. Terms of the agreement include transferring all of Guardite's assets to A-M in exchange for preferred and common shares.

•

American Can Co. and Dixie Cup Co. directors have approved plans to merge the two firms. The agreement calls for an exchange of stock on the basis of 1.65 shares of Canco common for each share of Dixie. Canco will use previously authorized, but unissued, common stock for the acquisition.

EXPANSION

Barium Monohydrate: Sherwin-Williams Co. will build a new barium monohydrate plant adjacent to its barium carbonate unit at Coffeyville, Kan. The new plant, scheduled to go onstream only in 1958, will cost "over $1 million."

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Carbon Tetrachloride: Food Machinery and Chemical will double capacity of its carbon tetrachloride plant at South Charleston, W.Va. The project, to be engineered by Fluor Corp. (Los Angeles), will be completed in '58.

•

Petrochemicals: Kerr-McGee Oil Industries Inc. has approved a $4-million expansion of its Wynnewood, Okla., refinery. New additions will include a 7,350-bbls./day naphtha prefractionator, a 5,500-bbls./day distillate Unifier, a 5,500-bbls./day Platformer and a 4,000-bbls./day distillate Unifier along with other improvements outside the process area. C. W. Nofsinger Co. (Kansas City) will do the engineering.

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Polyethylene: Cost of Spencer Chemical Co.'s expansion of polyethylene production at Orange, Tex. (*CW Business Newsletter, May 4*), has been revealed by company president, Kenneth Spencer, as "substantially less" than the initial plant investment of $10 million.

•

Uranium: The Atomic Energy Commission has signed a contract with Homestake-Sapin Co. for construction of a $9-million uranium mill in the Ambrosia Lake area of McKinley County, N. M. Homestake-Sapin is a limited partnership formed by Homestake Mining Co. (San Francisco) and Sabre-Pinon Corp. (Santa Fe).

Construction of the new mill, contracted to Utah Construction Co., will be delayed until the company completes exploratory work.

FOREIGN

Sulfur/France: France, now an importer of sulfur, is slated to become the world's second (to the U.S.) largest sulfur producer. The Lacq gas fields in the southwestern part of the country produce a sulfur-rich methane gas. After five years of development, separation plants are producing gas for power and sulfur for chemicals. Result: France's sulfur output will reach 1.2 million tons by '62.

•

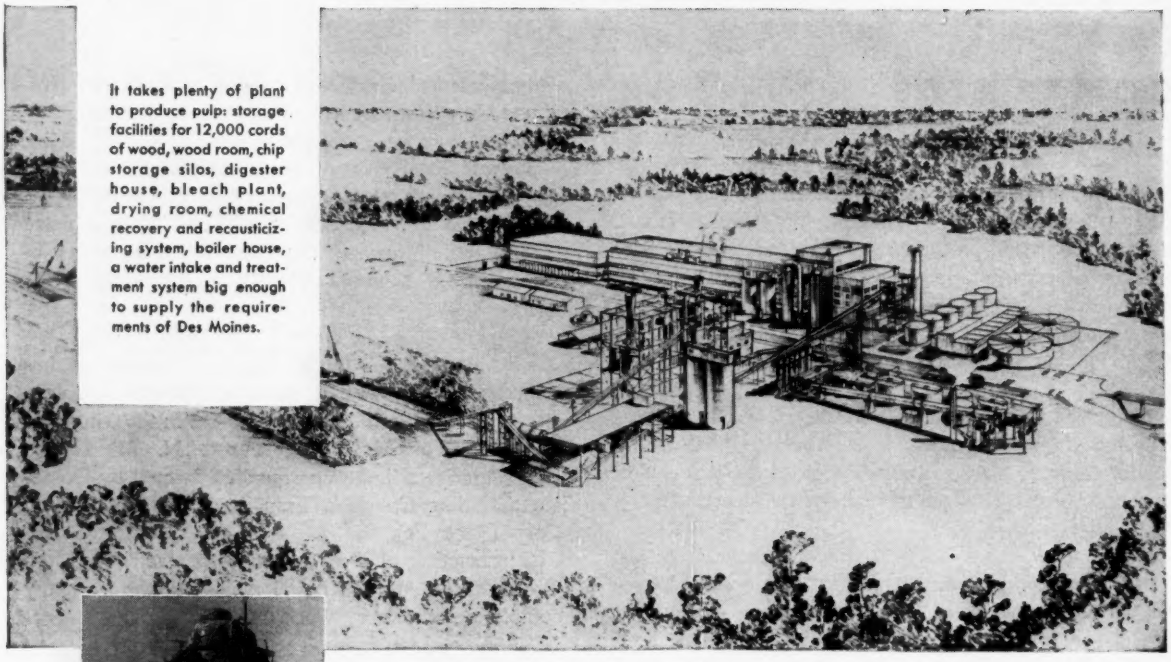
Sulfonate/England: Manchester Oil Refinery (Holdings) Ltd. has a new sulfonate plant in trial operation at Manchester, Eng. The firm is building several auxiliary plants because "sulfonates are assuming the character of tailor-made products . . ."

•

Petrochemicals/England: Foster Wheeler, Ltd., has been awarded the contract for construction of Esso Petroleum Co., Ltd.'s $25-million petrochemicals plant at Fawley. The plant will make ethylene, propylene, butylene and butadiene.

•

Fertilizer/Iraq: Two Swiss firms have been selected as consultants for chemical projects in Iraq. The Iraqi Development Board, which uses the country's oil revenues for industrial projects, has picked Ammonia Casale to help in the construction of the $23.7-million Basrah fertilizer plant. Ing. Maurer Ltd. will be the consultant for a new rayon plant also at Basrah. The rayon plant—part of a $17-million rayon and fine textile project—will produce 2,500 tons of rayon and 1,500 tons of other fibers annually. The fertilizer plant will produce 250,000 tons/year of ammonium sulfate. Since Iraq's consumption of this product was only about 1,500 tons in 1956 (up, however, from 379 tons in '54), most of the plant's output will be exported.



It takes plenty of plant to produce pulp: storage facilities for 12,000 cords of wood, wood room, chip storage silos, digester house, bleach plant, drying room, chemical recovery and recausticizing system, boiler house, a water intake and treatment system big enough to supply the requirements of Des Moines.

More and better production is provided by one of the first Kamyr continuous-digester installations in the U. S. Wood chips are steamed, then discharged under pressure into digester (shown here under construction) that completes the change into pulp.

FERGUSON speeds design and construction of market pulp mill for Gulf States Paper

Twenty months after contract date, Gulf States Paper Corporation's pulp mill at Demopolis, Alabama, will be completed and producing 275 tons of bleached pulp per day. Because of Ferguson's synchronized speed, actual construction of the complex plant was underway four months after engineering was started. This is the fourth project for Gulf States Paper awarded to Ferguson since it was assigned the major expansion of the company's main plant at Tuscaloosa in 1946.

Ferguson's ability to convert sites into producing plants in record time at lowest possible cost is the reason so many companies call upon Ferguson time and time again. Whatever you make or process, you'll find Ferguson's one-contract, one-responsibility service can do the same for you.

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Washington Newsletter

CHEMICAL WEEK
May 11, 1957

Rapid tax write-offs for chemical expansions are threatened. Most immediate threat—current antitrust policy—is to the program to allow fast tax write-offs on liquid nitrogen/oxygen capacity. But a new bill introduced in the Senate by Sen. Harry Byrd (D., Va.) could affect the tax aid for research and development labs built by the chemical industry. Byrd would limit the speedy amortization to plants having military contracts.

Currently, the U. S. government seeks an additional 4 billion cu. ft. of nitrogen and oxygen plant capacity (*CW, April 6, p. 24*), capacity that would play a vital part in its rocket fuel program. But Linde Co. is the major applicant for liquid-gas write-off certificates, and Justice Dept. antitrusters frown on government aid likely to strengthen a major producer's dominance in any field. The Justice Dept. attitude has a close bearing on the matter, because Defense Mobilizer Gordon Gray will assuredly seek the department's okay before he approves the Linde certificate. And just last month, the Justice Dept.'s opinion dispelled Dow Chemical's hope for fast write-offs on its new glycerine plant.

The impact of Byrd's bill is uncertain. Technically, the bill looks to be no more restrictive on the write-offs for research and development plants than current Administration rules, which limit aid to labs needed to perform defense-approved R&D work. But as a general policy, passage of Byrd's bill would be interpreted as a tightening.

Basically, the bill might hamper flexibility in other areas by requiring companies to have a defense contract in hand before applying for write-offs. Pentagon practice (e.g., in oxygen) is to limit buying commitments to short-term, renewable contracts. Byrd's bill would mean greater risks for industry, hence is likely to draw ODM objections on grounds it destroys the basic aim of rapid write-offs—to spur expansion where long-term contracts are not assured.

Delays in issuance of the certificates—perhaps as long as several months—are the likely outcome of the Justice Dept. attitude, and the possible passage of Byrd's bill. And, if a real tangle develops, the Pentagon may turn instead to direct subsidies or government plant construction.

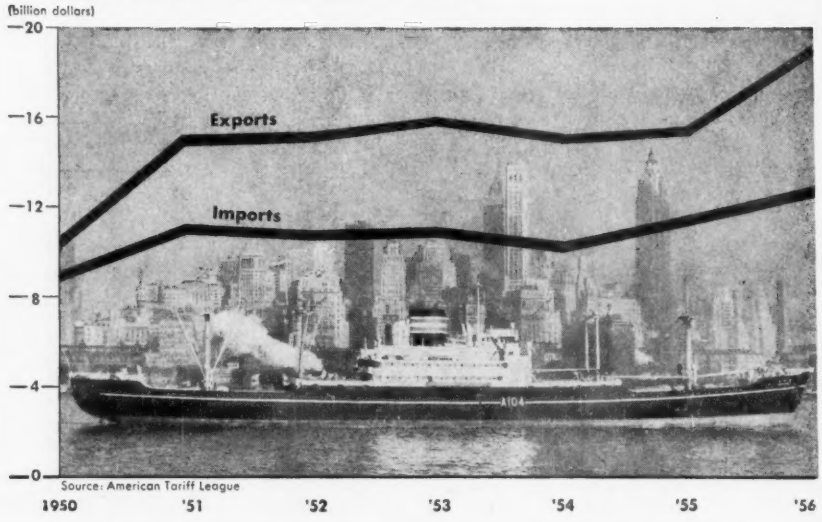
•

End the government's helium monopoly? Interior Secy. Seaton would like to. He has his top aides looking for ways to induce private firms to take over the government's four plants and build others to meet fast-growing demands. Chief barriers: (1) despite promising civilian outlets, the government will always remain the biggest customer; (2) how to assure competition when helium quality differs widely among gas fields. The problem can't wait—helium is going to waste for lack of extraction plants, and conservation actions. This is fast dissipating the U. S. lead over Russia in a valued resource.

Charting Business

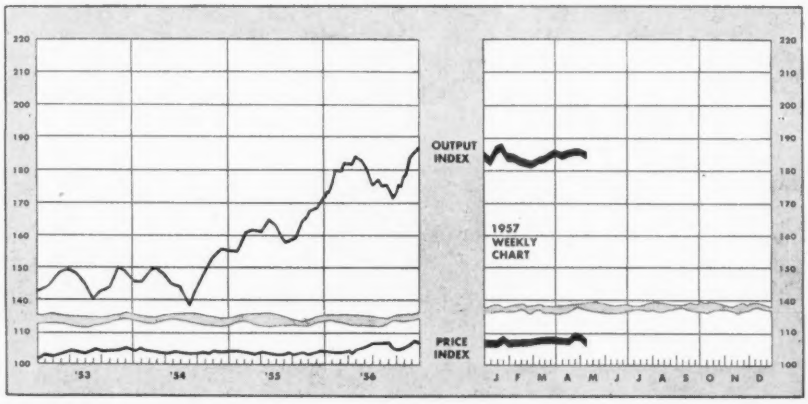
CHEMICAL WEEK
May 11, 1957

Exports, Imports Show Rise



Foreign Trade Hits Historic High

LAST YEAR, U.S. exports and imports—$19 billion and $12.6 billion, respectively—were the highest ever recorded. While this widened the overall trade gap to $6.4 billion, enough U.S. dollars were sent overseas from economic aid and investments to have easily made up the difference. Substantial increases were reported in U.S. exports of heavy chemicals, industrial equipment, iron and steel scrap, and synthetic rubber. The Suez crisis also hiked oil, fuel exports.



Business Indicators

WEEKLY	Latest Week	Preceding Week	Year Ago
Chemical Week output index (1947-49=100)	186.2	186.8	183.2
Chemical Week wholesale price index (1947=100)	110.0	109.8	106.0
Stock price index of 11 chemical companies (Standard & Poor's Corp.)	44.21	43.99	49.92

MONTHLY—Foreign Trade (million dollars)	Exports			Imports		
	Latest Month	Preceding Month	Year Ago	Latest Month	Preceding Month	Year Ago
Chemicals, total	99.1	102.8	96.7	23.2	21.7	23.5
Coal-tar products	5.4	5.9	6.1	5.1	4.3	2.9
Industrial chemicals	17.8	16.7	15.1	7.0	7.7	7.5

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BLACK STAR

CLEANUP devours specialties. Diesels are cleaned, steam engines aren't.

Specialties Ride the Rails

In the organization charts of more and more specialties firms will be found a square marked "Railroad Division." Reason: the roads have long been steady, high-volume purchasers, are getting easier to do business with—they pay their bills more quickly, are receptive to new ideas, are beginning to think of other things than price. And their buying volume is going up, too—last year, they bought $48.5 million worth of chemical products, of which a high percentage were specialties.

The most important chemical specialties purchased by the railroads are paint products (about $17 million/year), herbicides ($10-20 million) and cleaning preparations (50 million lbs.). But railroad men go on to say that the roads use "a little bit of everything made," including such specialties as water conditioners, waxes, paint removers, battery acid, waterless hand cleaners, drugs, additives for fuel oil.

Although railroad purchasing methods range as far apart as their various trackage, some emerging patterns spell easier selling. There is the definite trend away from use of specifications, for example. A purchasing agent for one large Eastern railroad, which has all but abandoned its once-rigid specifications system, explained it this way: "No railroad lab man, whose work must necessarily range from analyzing lube oil to comparing paint colors and to testing detergents, could possibly know as much about detergents as a man who devotes his life to them. We just can't keep up with new developments."

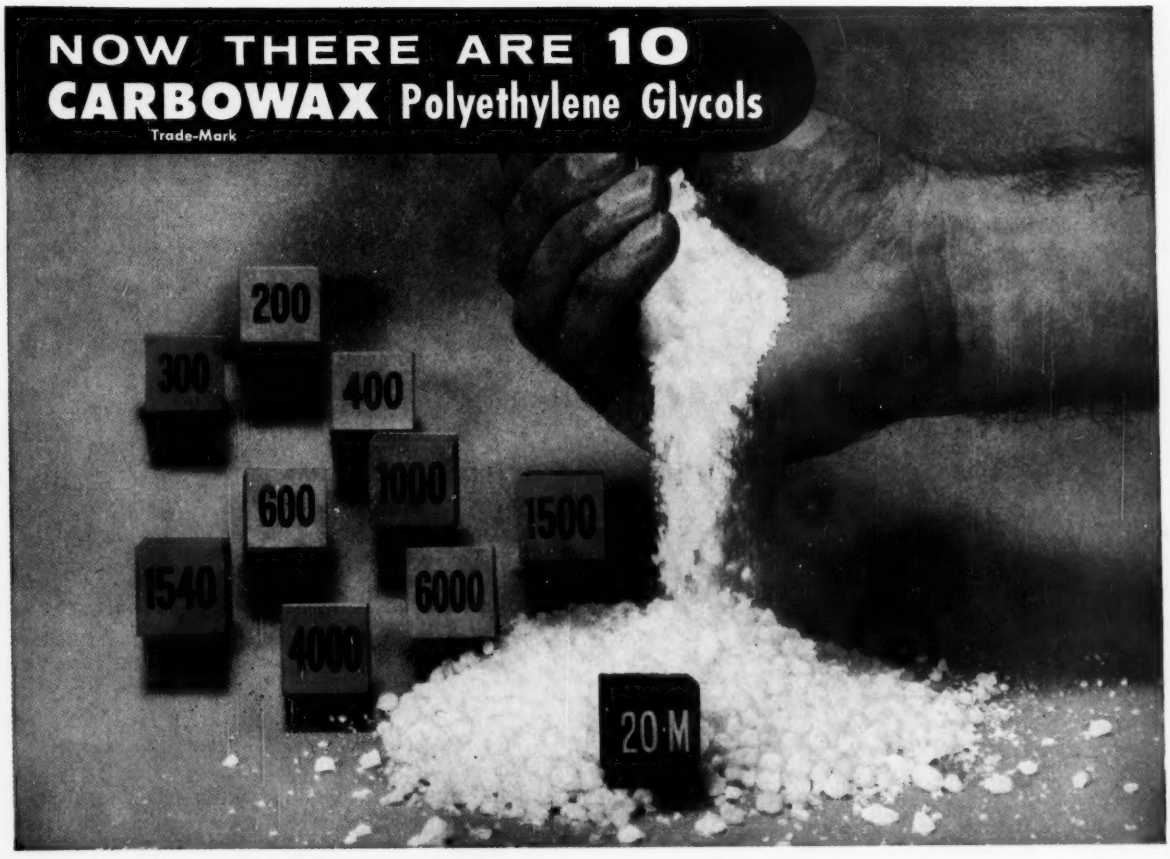
On the other hand, R. W. Seniff, of the Baltimore & Ohio's research department, has recently made his road's purchasing more formal by adopting a modified specification-purchase plan, says "life was never so pleasant." But the B&O is bucking the trend.

Togetherness: Not only are specifications likely to be outdated, admits one railroad, but the roads also now face the problem of having to spread their business around among their own customers. Many instances have been reported of a specialties maker developing detergents or other products to meet some particular railroad's need and then finding it is not able to sell them because of pressure from the road's traffic (sales) department.

This gives large specialties makers (particularly divisions of big, diverse firms) a real advantage. But if their prices or quality seem more than slightly out of line, they won't get the business.

Dollar Sign: For many railroads, price is a more important question than quality, although there seems to be some trend toward upgrading specialties purchases in those cases where

WEED KILLERS are big sellers. Firms supply crews and spray cars.



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CARBOWAX polyethylene glycols are widely used as solvents, humectants, lubricants, and intermediates. They have become increasingly important as vehicles for medicaments and cosmetics, as mold-release agents, textile lubricants, softeners, antistatic and conditioning agents, and as intermediates for surfactants and synthetic resins.

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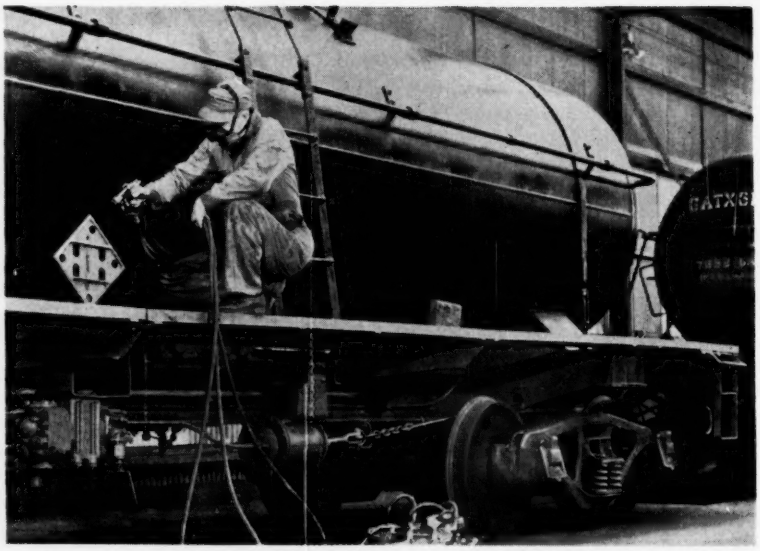

PAINT: Box cars are painted every 5 years; chemical tank cars more often.

the roads look at over-all maintenance costs instead of just cost of material. Specialties makers should be encouraged by many roads' setting up cost analysis and time-study programs.

Long Road: Although some of these moves indicate a more enlightened attitude on the part of the roads, there are still several ways in which the carriers could further modify purchasing in order to make the suppliers' jobs easier. Here are two complaints of specialties makers:

- It takes a long time for a railroad to make up its mind about a product. This waiting period, sometimes as long as two years, constitutes a major objection of suppliers, is the chief difference in selling to railroads and selling to other industrial customers.
- Some vendors have found that it doesn't pay to try to get too much

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of any one road's business. When purchasing men see too much concentration with one supplier, they are inclined (say the vendors) to arbitrarily split the buying several ways. Railroads like as many sources as possible.

Railroads are much more clannish than many industries, according to specialties men. They are likely to take each other's advice on some specialties and pay close attention to recommendations from the American Assn. of Railroads (if these don't conflict with demands from their traffic departments).

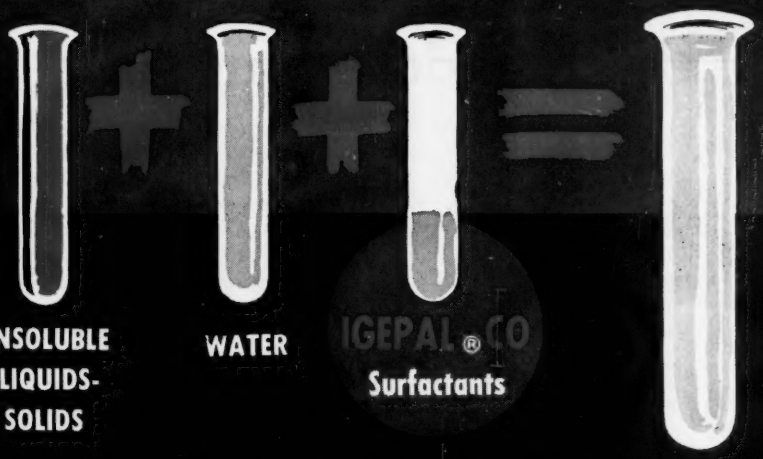
Naturally, the findings of some railroads carry more weight than those of other lines. The giant lines (New York Central; Pennsylvania; Atcheson, Topeka & Santa Fe) are usually listened to, and so are some of the others (e.g., B&O; Chesapeake & Ohio; Chicago, Burlington & Quincy; Denver & Rio Grande Western; St. Louis-San Francisco).

No Trucks: As might be expected, railroads have an abhorrence of items delivered by truck, even if rail delivery takes twice as long. More important to the cost-conscious railroaders, however, is the frequency and size of delivery. By getting suppliers to ship to points of use in less than carload (l.c.l.) amounts, the railroads save on warehousing and inventory costs.

Although there has been a general trend away from signing contracts with suppliers, some have been contracting for specified amounts of material, with the provision that the railroad be able to mix carload and l.c.l. orders, all at carload prices.

On the Spot: Companies that are doing well with the railroads, such as Oakite Products Co. (cleaning preparations), Pennsalt (detergents), National Aluminate Co. (herbicides, water conditioners), Sherwin-Williams (paint) and Magnus Chemical Corp. (cleaning compounds), find that it pays to send out good technical men. Oakite, for example, sometimes keeps men in railroad shops as long as two years, setting up cleaning systems, and incidentally, setting up some long-term business for Oakite.

Railroads, particularly the larger ones, often ask that one salesman be assigned full time to their system. Specialties makers, of course, are happy to oblige.



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IGEPAL CO-730	15	75	
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*Moles of ethylene oxide per mole of nonylphenol.
†Percent of ethylene oxide.

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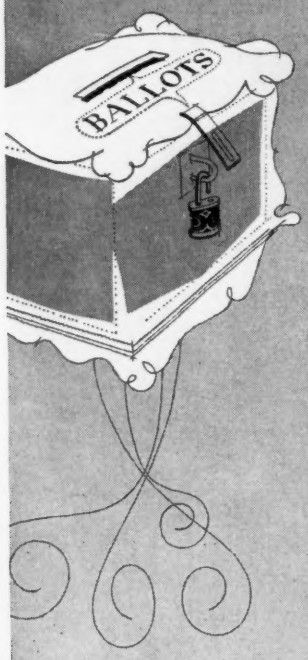

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Plants in: Clifton, N.J., Carlstadt, N.J., Los Angeles, Calif.

Much Ado About Little

Stockholders at Colgate-Palmolive's annual meeting last week heard some disconcerting news. Although worldwide sales were higher than ever—$502,523,000—profits were heading the other way. Net income for '56 was $10,518,000, a full 25% down from '55's $14,008,000. The one bright spot was foreign earnings, biggest yet at $5,336,000. But domestic earnings did a nose dive, plummeted to only $5,182,000 from $9,260,000.*

Stockholders also got a look at the company's new domestic reorganization. With foreign subsidiaries doing so well, Colgate did the rather obvious thing, brought one of its brightest overseas managers to man its newly adopted product manager setup, a "vertical" plan of organization patterned somewhat after the foreign operation.

FABIAN BACHRACH

COLGATE-PALMOLIVE'S LITTLE: His press notices are critical.

From Canada came Guy C. Grace to head the Toiletries Division, and from Mexico came William T. Miller as Household Products chief. Over them is Ralph A. Hart, former International Division chief, now executive vice-president. Replacing Hart as head of the extensive foreign network (operation in 32 countries, manufacturing in 29) is George S. Lesch.

These new organizational changes were effected largely by Board Chairman Edward H. Little. Little has taken a close interest in the overseas group, and is given by some the major share of credit for the growth of the International Division. It is interesting to note, however, that the period of greatest growth in overseas sales actually took place after the war.**

Managerial Know-How? Although many stockholders agree that Colgate needs some new pep in its domestic operation, there's doubt in some quarters whether overseas selling aces can provide it. Not every one is willing to ascribe C-P's success in international sales to some arcane managerial know-how.

As much to do with it as anything, some say, is the general socioeconomic rise of lower classes since the war, especially in Europe. Europe's increased purchasing power can absorb much greater quantities of soaps and toilet goods. The "Big Three" soapmakers, hustling to catch up to demand, have actually provided each other with little bruising competition overseas. They all get more sales from expanding markets than they could take from each other in a tighter economic milieu.

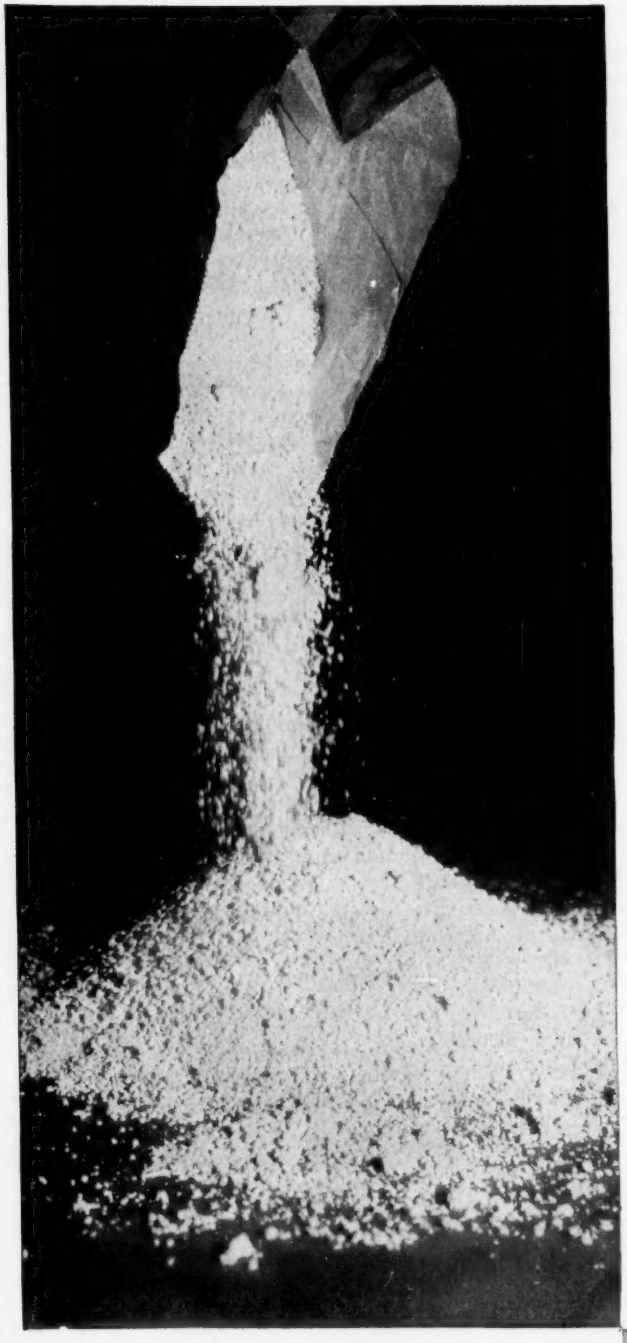
Certain nations' markets, e.g., Britain and France, somewhat resemble the well-exploited U. S. market, but over-all there are areas like Italy, Turkey, Greece, where marketing opportunities are there for the taking.

Now, there are signs that C-P's relative freedom from rugged competition is nearing an end. Just getting started in the foreign field is P&G, which now operates in 14 nations, compared with four before the war. It is said to be racking up sales of $200 million/year in those areas. P&G earnings (overseas) were $7.2 million in '56; net assets, $75.3 million. (The earnings figure is actually down from that of '50, but the heavy costs of opening new markets washed out some normal

*By way of contrast, P&G topped the $1-billion mark for sales in '56, had earnings of $59 million, upping '55 earnings by $2 million, '54's by almost $7 million.

**Beginning in 1947, there was a sharp climb in international sales, a widening of the gap between the pace of sa es increases for that group and the pace of the domestic division. This situation is even more apparent today; net income for the first quarter of this year: domestic, $1.713 million, down from $1.792; international sales: $1.018 million, up from $828,000.

Goodrich-Gulf Chemicals, Inc.



NEW DEVELOPMENT:

Goodrich-Gulf introduces Ameripol "crumb rubber" to save you processing equipment and cost

ALL Ameripol hot polymers are now available in the form of crumb rubber—developed and introduced by Goodrich-Gulf Chemicals.

This innovation in butadiene-styrene rubber is of particular value to manufacturers of rubber adhesives, mastics, cements, or other products where the rubber raw material must be put in solution before processing. Here the need for milling or chopping equipment and operations is eliminated, and the Ameripol crumb rubber can be processed as received.

In molding and extrusion too, the use of crumb rubber cuts costs. Manual cutting of conventional bales of rubber to exact weight can be eliminated.

Ameripol hot polymers in crumb form have been fully evaluated in use, and are now available in production quantities. More than ever, Ameripol is the preferred man-made rubber. Contact us for your requirements.

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earning power. Net assets, during the same period, have nearly doubled.)

Colgate has had several brushes with rugged P&G competition in foreign lands, however. In England, for example, P&G got the jump on Colgate shortly after the war, with its syndet Tide. In one of the toe-to-toe product clashes Colgate has had overseas, it shot its own Fab into the market too early. The product caked, sometimes gave off bad odors. The outcome: Fab got a bad name, while Tide got the detergent business.

Then came William T. Miller to head the Toiletries Division. It was he who reorganized the British operation, successfully brought in Cadum, a toilet soap, from France, and pushed Ajax Cleanser to take one-third of the British scouring powder market. Miller is also given credit for devising the brand manager system, now adopted here.

McKenzie Report: On the domestic scene, there's a lot of talk about C-P's attempt to prune out dead wood, following recommendations of the McKenzie report, a study submitted by a management consultant firm after a six-months look-see at the company. It's said that the McKenzie report suggests that Little step down, once the reorganization is onstream. This is categorically denied by the company, however. Said public relations man Spencer Valmy, "There's no possible way you can twist that meaning into the report."

(Less emphatic was Valmy's answer to a query about the company's plans for a new research lab in Bloomfield, N.J. Slowing the project: "engineering problems to be worked out.")

Uphill Work: The business press and advertising weeklies have been especially critical of Little, one calling him "a latter-day Sewell Avery, who doesn't object to fixing responsibility but feels differently when it comes to delegating authority." The other item dwelt at length over the details of Little's skirmish with a woman stockholder who asked him, "Why do you fire so many presidents?" These comments have made the rounds of Wall St., could have adverse effect on the company stock.

What's ahead for the company? On the one hand, the advent of Grace, Hart and Miller will certainly help company morale and streamline the organization. On the other hand, company officials appear to have had a history of being effective inversely proportional to their distance from Little. Examples: William Sims, who, during his long tenure in overseas operations, hung up a good record, only to lose out after being the company president for two years.† Another said to have left because of roadblocks set up by Little: Tom Vaughn—present head of research at Pabst.

Overseas Bright Spot: Overseas sales will undoubtedly climb for a while—but probably not at the rate predicted for it by some company officials, i.e.: double in a few years. Lever Brothers is reasserting itself both here and abroad, P&G is climbing, and local products should give more trouble in the future as well. There's this, too: up to now—at least in Europe—the "Big Three" have more or less been sharing a close arrangement where each company is doing best with its specialties. Lever is pushing soap; C-P is well entrenched in toiletries, and P&G is tops in detergents. If this comes down to a more general selling along the lines followed here in the U.S., competition (and promotion costs) will soar and each will take a smaller share of the sales.

Uneasy Sits the Head: In speaking to his stockholders, Little said the company would go slow in picking the next company president, didn't say who it would be. *CW*'s guess: Ralph Hart.

EXPANSION

Westward Step: Kerr Chemicals Inc. (Chicago) has expanded its operation to include a new 10,000-sq. ft. plant at Redwood City, Calif., in the San Francisco area. The plant is equipped to handle all types of contract filling.

•

Bottle Opener: Imco Container Corp. (Kansas City, Mo.) is about ready to open its Canadian polyethylene molding plant at Toronto. The plant will produce a variety of bottles from stock molds as well as from private molds.

•

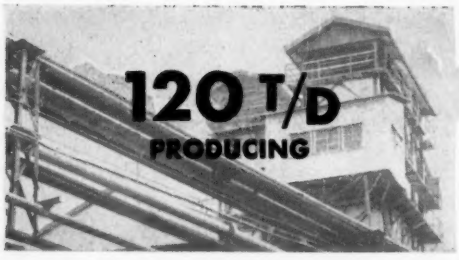
Custom Inks: Ink Masters Inc. has been newly formed in Chicago to

†Joseph Connell served the company from '53 to '55. He left to "go fishing." William Sims II left last month to "tend citrus groves in Florida."

UREA

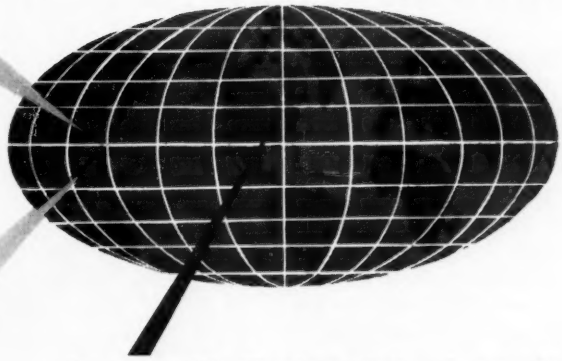
...the commercially proven CHEMICO PROCESS

A view of the 90 tons per day Urea Plant at Niigata designed by Chemico for Nippon Gas Chemical Industries Ltd.



A part of the 120 tons per day Urea Plant designed by Chemico for Sumitomo Chemical Company Ltd. at Niihama.

NOW...200 T/D
under contract in North America



The success of the Chemico synthetic urea process is reflected in the company's record in Japan. The 40 tons per day plant built for Sumitomo Chemical Company at Niihama in 1952 has been expanded twice to 120 tons per day operation. On the basis of this record, Chemico was awarded a contract by Nippon Gas Chemical Industries for a 90 tons per day plant at Niigata. This plant started on stream in the spring of this year. Now . . . Chemico has been awarded the contract for a 200 tons per day Urea Plant in North America, utilizing the Chemico process. Production experience at the Sumitomo plant has shown the following advantages of the Chemico urea process:

- High conversion of the carbamate to urea per pass.
- Simple recovery of the excess ammonia in liquid form without additional compression.
- Efficient recovery of the ammonia from the unconverted ammonium carbamate for full recycle to obtain overall high ammonia yield.
- Produces spherical free-flowing granules which require no coating agents.
- The Chemico process can be used for the production of urea in fertilizer and industrial grades.

For more detailed information on the commercially proven Chemico process, write, wire or call . . .

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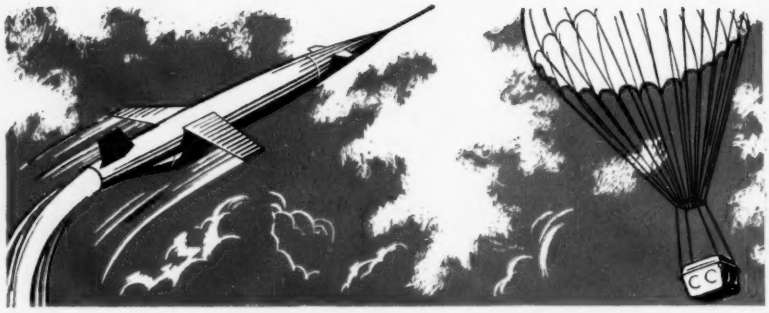
ATLAS

CHEMICALS DIVISION
ATLAS POWDER COMPANY, WILMINGTON 99, DELAWARE • ATLAS POWDER COMPANY, CANADA, LTD., BRANTFORD, ONTARIO, CANADA

Physically strong, chemically tough parts molded with new Atlac Thermaflow compound

To designers who are hunting for better ways to use plastics for military purposes, we recommend a close look at Atlac Thermaflow 800—latest in our series of reinforced polyester molding compounds. It is especially made to meet military specification MIL-M-14E for type MAI-60 glass-fiber reinforced molding compounds. With this new material, you can design for a combination of weight savings, impact strength, electrical properties and corrosion resistance that was never before possible.



Atlac Thermaflow 800 is a close relative of the reinforced plastics you've read about in such glamorous uses as body panels for sports cars, fuel tanks for jet planes, and translucent panels for modern houses. That is, it's a "super-strength" plastic—nearly as strong as steel, but far lighter. The first big difference about the "800" material is that it is a molding compound. You can form it in a conventional compression or transfer press, which means more production than would be possible by hand lay-up. And the second big difference is that "800" stands out from other reinforced molding compounds because it weighs less, flows easier into big molds and complex shapes, has higher strength, resists chemical attack and gives excellent electrical insulation.

This material is so easy to mold in big shapes, without developing weak spots in corners and edges, that a lot of people have been making pieces out of it that they used to make from cast or forged metal. You can use "800" to simplify assembly, too, because it's a cinch to mold metal inserts in place, and to make a single big part instead of several little parts.

Some of the promising applications for Atlac Thermaflow 800 include insulating parts and housings in electronic computers, electrical fuzes for projectiles, parachute-drop containers. Write to Atlas today for technical data, samples, and a consultation on how you might use this material in specific designs.

Tailor-made detergency with the new RENEX® 600 series

When you're planning a new kind of cleaning compound, don't let your goals for desirable product characteristics be limited by properties of the detergent ingredients you're using. Take your choice from the new "600" series of RENEX detergents—and you're sure to find exactly the kind of cleaning, wetting and other actions you're looking for.

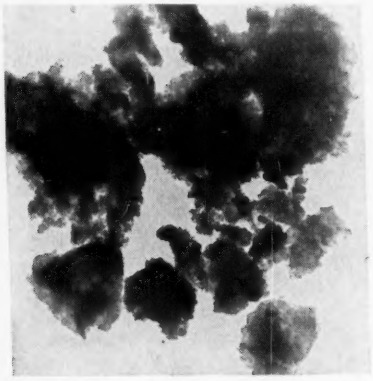
There's an interesting chemical reason for the wide range of qualities you get in the new RENEX series. These materials are polyoxyethylene nonyl phenols, and by adding various numbers of ethylene oxide groups to the basic molecule, we can give you a whole range—in complete gradations—of the different values you consider in making your selection. For instance, as more ethylene oxide is added, cloud point goes up . . . viscosity goes up . . . specific gravity goes up. At the same time, HLB values go up, indicating that the detergent's water solubility increases. And foam height, surface tension and pour point also vary with the amount of ethylene oxide.

All of this information is summed up in a new bulletin. We'll be glad to send you a copy.

chem-memos

Color of chemical products improved by DARCO® activated carbon

Do your salesmen have trouble selling your product, because its color isn't as good as your competition?



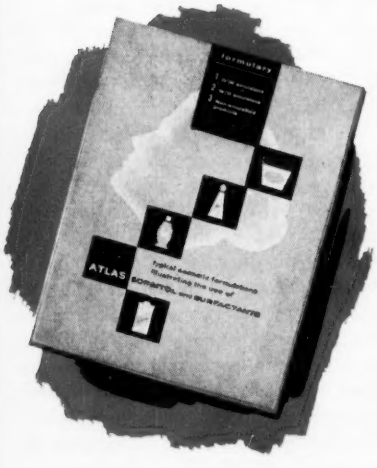
Electron microscope photograph shows how pore structure of DARCO *activated carbon particles gives tremendous adsorptive area.*

Maybe we can help you. DARCO activated carbons are a possible remedy wherever color needs to be removed from a liquid. The impurities that cause color are often present in extremely small concentrations. Ordinary chemical methods of removing them are often too expensive, too inefficient, and occasionally too hazardous.

This is where activated carbon does an outstanding job. Many of the color-bearing materials that you want to get rid of are large, complex molecules that activated carbon can readily adsorb within its extensive internal pore structure. The process is extremely simple: just add carbon (it's relatively easy to figure how much is needed), agitate, and filter.

We've worked with chemists and production men in many different industries for several decades, helping them to figure out and apply ways to use DARCO activated carbon for color removal. If you've got a problem of this sort, call on us.

More help for cosmetic formulators... new Atlas Formulary

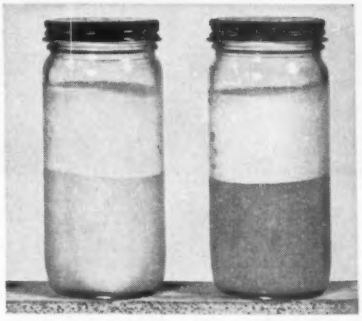


Cosmetic chemists can often get their new development projects off to a quick start with data contained in the new Atlas Formulary. This helpful book is the latest addition to the Atlas 4-Point Program for helping formulators save lab time and dollars, through (1) easier emulsifier selection, (2) expanded technical service, (3) handy reference literature and (4) spot news on formula ideas.

Included in the Formulary are 37 guide formulas, on which you can base new product developments or reformulation of present products for today's fast-moving market. The book covers O/W and W/O creams and lotions of many types, as well as non-emulsified products such as toothpastes and stick products.

For a copy, write or call Atlas today, or ask your local Atlas representative.

Want to break an emulsion?



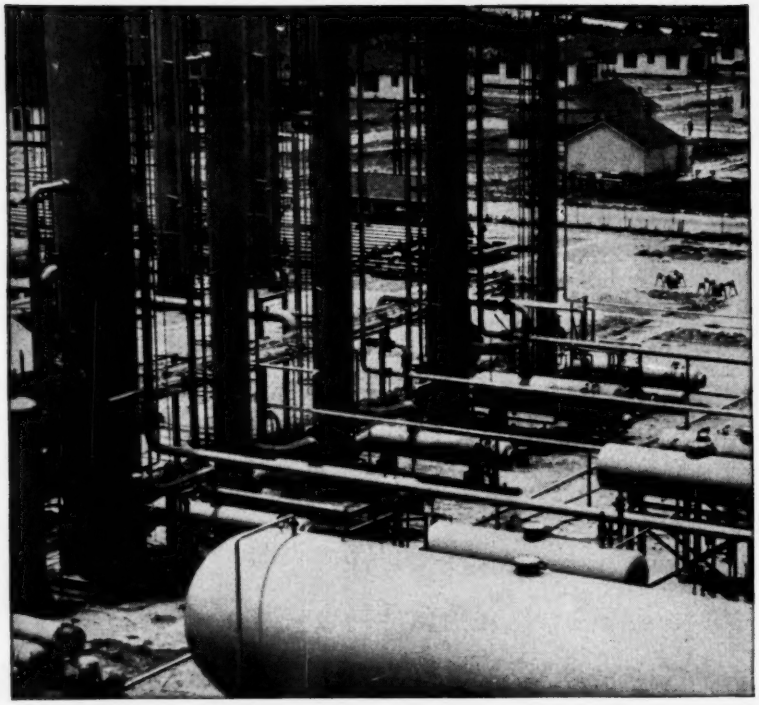
Making an emulsion separate, to recover oils or to remove water, can often be done by adding the right surfactant.

"Knocking emulsions apart" is often a useful trick. It may be an economical way to recover valuable oils or waxes dispersed in waste water.

Most people who buy our emulsifiers want them to make oils or waxes mix with water and *stay mixed*. But making them come *unmixed* is a closely related problem. For example, the kind of emulsifiers we sell for emulsifying *water* into *oil* will usually *break* the opposite kind of emulsion (i.e. an emulsion of oil in water). Conversely, our best "oil-in-water" types of emulsifiers are likely to make the components separate out from a water-in-oil emulsion.

If you have an emulsion-breaking problem on your mind, drop us a note about it. Chances are we can suggest an answer.

Pipe, fittings and linings of Lead cost much less, give better protection



Federated lead products are the most economical and efficient protection against acids and caustics.

They are less expensive to use because the metal has a high resale value as scrap.

They are more efficient because lead is self-healing. Scratch it in the presence of many acids and a protective coating immediately re-forms. There is no focal point at which corrosion can set in.

Lead is easy to work. It is pliable and can be shaped as required. And it is readily available at moderate cost.

Federated produces chemical lead in sheets made to your specifications. Pipes, bends, traps and other standard fittings are available from stock. Special forms can be fabricated to order.

We shall be pleased to send you additional information. Call us or mail us a postal card.

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SPECIALTIES

manufacture printing and lithographic inks.

•

Over the River: Daniel Products (New York) has acquired enlarged manufacturing facilities and offices in Jersey City, N.J. The plant consists of a two-story fireproof building, a one-story warehouse and several auxiliary buildings. The company turns out tinting colors, silica flatting bases and other paint specialties.

•

Room to Grow: R. J. Strasenburgh Co., pharmaceutical manufacturer, is planning a $1-million plant on a 10-acre site at Rochester, N.Y. It is scheduled for completion for the summer of '58.

•

Substitute Scent Source: Standard Aromatics Inc. (New York) now supplies the cosmetic industry with the perfumes formerly supplied by Parfums Orelay (Scotch Plains, N.J.).

•

Coatings Specialists: Dittbrenner Associates Inc. has been formed with headquarters at Rockaway, N.J., and laboratories both there and in Wilmington, Del., to produce specialty coatings. Besides furnishing most of the commonly known corrosion-resisting paints, the firm will promote a new approach to steel surface preparation that is said to be a substitute for and an adjunct to sandblasting.

•

Paint Spreader: Ground was recently broken by Sherwin-Williams' new paint, varnish and lacquer factory and wholesale distribution center at Garland, Tex. The structure will cost $3 million, is due in operation early next year. S-W claims it will be the largest integrated paint installation in the Southwest, with 10 buildings and three tank farms situated on a 25-acre tract. The present plant at Dallas will be closed.

•

Detergents: Surfacto Co., Inc., has been formed in Blue Island, Ill., to "answer the need for a wider range of highly developed liquid detergents that can be made simply and economically." Already in production: a line of concentrates for formulation of floor cleaners, dish- and car-washes and wax strippers. The new company has bulk storage for raw materials in excess of 100,000 gal., a plant capable of processing 20,000 bbls. of alkanol-

TENNESSEE CORPORATION

INDUSTRIAL CHEMICALS

We mine Copper, Sulfur, Iron and Zinc and are basic producers of their chemical derivatives. Our technical know-how and basic position in these minerals is your assurance of exacting quality control, strict uniform consistency and a plentiful supply.

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COPPER SULFATE
Industrial Crystals and all common grades.

MONOHYDRATED COPPER SULFATE
35% Copper as metallic packaged in steel drums at no extra cost.

COPPER CARBONATE
55% Copper as metallic. Light and dense grades.

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37% Copper as metallic. Available in polethylene-lined drums or bags.

CUPRIC OXIDE
Minimum 76% Copper as metallic. Technical grade . . . NOT A BY-PRODUCT.

IRON

FERRIC IRON SULFATE
Partially hydrated, free flowing granular form. Available in bags or bulk.

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SULFURIC ACID

LIQUID SULFUR DIOXIDE
Highest commercial quality, available in tank cars, tank wagons, ton cylinders and 150-lb. cylinders.

CHLOROSULFONIC ACID
Iron less than 1.0 ppm as loaded. Water white. Delivered in glass-lined tank wagons, also in stainless steel drums.

SODIUM HYDROSULFITE
T-C HYDRO is a dry, white, free flowing, crystalline powder of uniform particle size and structure. It is dust free, assuring highest stability and uniformity.

PARA TOULENE SULFONIC ACID, ANHYDROUS
Other organic Sulfonic Acids.

ZINC

MONOHYDRATED ZINC SULFATE
36% Zinc as metallic. White, free flowing powder.

ZINC OXIDE
Secondary Zinc Oxide.

MANGANESE

MANGANESE SULFATE
65% Mn SO_4. Designed specifically for inclusion in mixed fertilizer.

MONOHYDRATED MANGANESE SULFATE
93% Mn SO_4, H_2O. Highest purity, technical grade . . . NOT A BY-PRODUCT.

MANGANOUS OXIDE
Minimum 48% Manganese as metallic. Feeds, fertilizers, spray or dust grades.

Samples, specifications and detailed information upon request.

TENNESSEE CORPORATION

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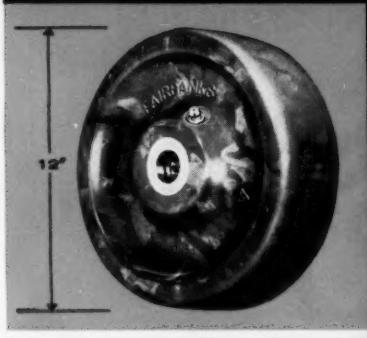
MIN CHEMISTRY *at work*

case: Great impact strength, denseness, imperviousness, and superior heat and abrasion resistance obtained with ASP 400 filler at high loading



This is "Lamilon"—internationally-known "family" of nylon-reinforced all-plastic caster wheels in diameters from 3" to 12" made by The Fairbanks Company, New York 3, N. Y.

Mineral Filler Report: Fairbanks states M & C's ASP 400 Aluminum Silicate Pigment filler gives unmatched performance as follows:

a. ASP 400 provides "synergistic wetting and combining action" giving wheels a much higher heat distortion factor than nylon, resin or filler possess in themselves.

b. "Lamilon's" impact strength is double the industry standard . . . water absorption is 90% under . . . abrasion resistance so superior it sets a *new* standard.

c. Long pot life, molding ease, no catalytic effects, no viscosity problems at high loading.

Our business is to supply low-cost non-metallic mineral products that are *process-engineered* to make things go smoothly in your plant . . . well in your markets. Use the coupon.

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I'm interested in a natural mineral product for_____

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For more data, see Chemical Materials Catalog Pages 330-334

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ATTAPULGITE (*Attapulgus*)
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KAOLIN (*Edgar • ASPs*)
LIMESTONE (*Chemstone*)
SPEEDI-DRI FLOOR ABSORBENTS

SERVICE AND STOCKS IN 30 CITIES

SPECIALTIES

amide condensates and 40 million lbs. of completely formulated detergents and concentrates yearly.

•

Resin Transfer: Specialty Resins Inc. (Chicago), manufacturer of plastics for dental materials and chemicals for industrial uses, has bought a 15,000-sq. ft. plant in Essington, Pa., from Montgomery Brothers, manufacturers of industrial adhesives and rubber chemicals. Specialty Resins will move its entire operation to Essington, and Montgomery will transfer manufacture of its products to U.B.S. Chemical Corp. (Cambridge, Mass.).

PRODUCTS

Fast Fix: Agfa (Leverkusen) has developed a new fixing bath that is said to reduce the normal fixing time for photographs to 2½-3 minutes. An additive brings about hardening of the gelatin layer.

•

Aerosol Car Polish: Jewel Chemical Corp. (Brooklyn, N.Y.) has introduced a 12-oz. aerosol car polish, good for two wax jobs. Called Jewel Aerosol Polish, it sells for $2.49.

•

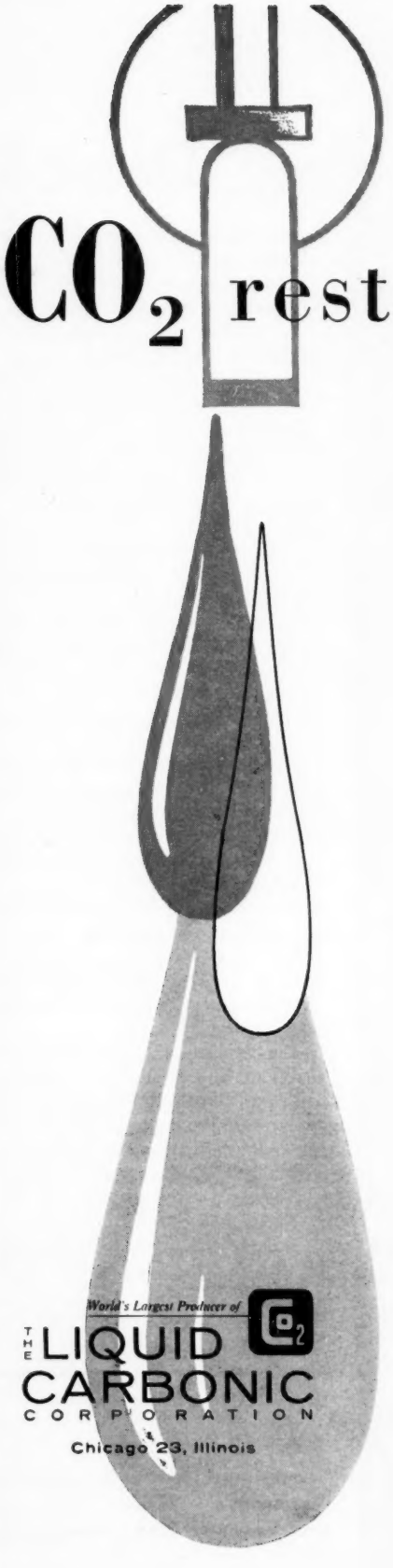
Poly Polish: Gorham Mfg. (Providence, R.I.) has adopted polyethylene tubes for its silver polish. Both 8-oz. cans and 6-oz. tubes—furnished by Bradley Container Corp.—are being used.

•

Bares All: Epoxystrip, an all-purpose finish stripper, has been introduced by Beck Equipment (Cleveland). It's especially formulated to work on epoxy resin finishes, is described as an "ideal" stripping agent for preparing rejected parts for refinishing and for removing paint from work holders. The stripper removes finishes in about 20 seconds without damaging bonderizing or other phosphate coatings.

•

Shrinkmanship: Low shrinkage characteristics are claimed for three silicone rubber compounds developed by Rubber Products Division of Parker Appliance Co. (Cleveland). The compounds (#76-128, #77-248 and #78-138), with 60, 70 and 80 Shore A durometer hardness, meet AMS specifications 3303, 3304 and 3305, are suitable over a wide temperature range (−80 to +500 F).



WHEN TAPS SLOWED TO A TRICKLE

CO_2 restored the flow

A few years ago the water taps in one of our midwestern cities began to flow too gently. City engineers suspected the culprit was excess lime.

In the lime-soda ash process of water treatment it is customary to over-treat the water to assure maximum softening. This causes plugging of the water lines due to precipitation of the excess lime.

CO_2 SOLVES THE PROBLEM

Recarbonation of the treated water with CO_2 changed the lime to a more soluble form—and water pipes stayed free-flowing. The CO_2 system is successfully solving the lime problem in cities like Minneapolis, Minn., Columbus, Ohio, Eau Claire, Wis. and many other municipalities.

This is just one of hundreds of CO_2 applications that may lead you to a solution to one of your problems.

IS THERE A JOB FOR CO_2 IN YOUR PLANT?

Almost every day another manufacturer or processing plant finds that carbonic gas can improve the product, simplify an operation, cut cost, or increase safety.

CO_2 is now doing a job in such varied applications as these:

Curing cores and molds for foundry castings
Making possible low cost gas shielded welding
De-flashing molded rubber products quickly at low cost
Improving paints and varnishes
Freeze-drying pharmaceuticals
A low cost, safe, weak acid for neutralizing
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Industrial planning for disaster conditions may be a puny thing in many areas, but this key phase of national defense is a muscular young giant in the chemical plant-studded Kanawha Valley of West Virginia.

Just how strong it is was proved last month when quick cooperation from neighboring plants, state and local agencies, the press and the public succeeded in holding down casualties and damages from the explosion at Monsanto's plant at Nitro.

This was the first big test for the Kanawha Valley Industrial Emergency Planning Council since it was organized in 1952. The emergency plan worked so well that only one flaw was brought out in the critique held last fortnight: roadblocks rapidly set up by state and local police were too restrictive.*

Policy of Realism: In times gone by, industrial management shied away from disaster planning. This was partly because of a feeling that it would be bad publicity to admit—even by implication—that hazards exist in industry. This same feeling—reinforced by practical considerations stemming from laws extending the scope of employers' liability—often led management to enshroud every plant accident with secrecy.

The new concept—that it's only rational to be prepared for accidents, and that corporate self-interest calls for prompt disclosure of serious mishaps that may affect the public—was exemplified in actions taken by local management before and after the blast at Nitro.

In recognition of the need for disaster planning, Monsanto helped estab-

*Excluded were two persons who probably should have been allowed to enter the blocked-off zone: a physician offering to treat the victims, and a railroad company official who wanted to move some freight cars loaded with chemicals that might have contributed to a secondary blast.

'Mushroom' cloud heightened Monsanto's public relations problems at stricken Nitro plant.

Disaster Catch You Napping

lish the KVIEPC five years ago. Monsanto management then went ahead with preparations to deal with possible emergencies at its own plant or at neighboring plants.

Prearranged Aid: When a chlorinator "let loose" at the insecticides and rubber accelerators plant last month, there existed a two-point policy that local management could and did adhere to:

- Posthaste measures to stamp out the fire, prevent further explosions, care for victims, and prevent additional casualties.
- Prompt and candid cooperation with local newsmen to make sure that press, radio and television reports could be accurate, so that accounts of actual losses and continuing danger would not be magnified by rumors.

While Monsanto had sole responsibility for carrying out this policy, company officials had the benefit of previous deliberations of KVIEPC's directors, plus much help that came by prearrangement from various other company and agency members of the organization.

Speedy Response: The blast came at 4:38 p.m. April 16**, and Personnel Manager P. T. (Barney) Bricker immediately telephoned state police headquarters in South Charleston, asking the troopers to start the emergency plan.

Within 10 minutes, all access roads into the Nitro area were blocked by state police, Nitro and St. Albans city police, and Civil Defense volunteers from St. Albans. Five minutes later, ambulances summoned by the state police began arriving. One state police radio cruiser car parked right at the explosion site to transmit messages to other KVIEPC member units.

All member plants in the valley went on stand-by basis, ready to send in emergency crews and rescue apparatus if needed. Two neighboring chemical plants rushed company nurses to the scene; another sent in oxygen masks and gas masks that Monsanto termed "invaluable" in rescue operations.

Safety First on Fumes: Meanwhile, chlorine from the unit that exploded and ammonia from ruptured feed lines were escaping into the air and uniting to form gaseous ammonium chloride. Management feared that more toxic fumes also might be going out from the blast-jolted area near building 46, and asked the state police to warn residents of several nearby communities. Police cars with loudspeakers cruised through those villages, and an estimated 1,500 persons left their homes—some for as many as three days.

From corporation headquarters in St. Louis, Monsanto rushed four company officials to Charleston via chartered plane. These were H. L. Minckler, director of manufacturing for the organic chemicals division; Dr. R. E. Kelly, medical director; J. R. Durland, assistant to Minckler; and G. K. Johnson of the public relations staff.

First stop of this foursome after arriving at Nitro at midnight—less than eight hours after the explosion—was at a hospital, to offer condolences to relatives of the injured employees. Next, the St. Louis men went to the plant, getting briefed en route by J. R. McClain, engineer in charge of the plant during the absence of Plant Manager Robert Soden, who rushed back from a New York business trip.

Secrecy Shunned: In the public information sphere, Johnson found that, although earliest press reports tended to be somewhat "wild," subsequent accounts were thorough, truthful and fair. This was attributed to the fact that local newsmen—carrying passes issued by KVIEPC—were able to pass through roadblocks and were given maximum cooperation by McClain and Bricker, despite their other pressing duties in the emergency.

Following the initial coverage of the blast toll and extent of damage, major public relations problems were:

- Complete, accurate information to the public on persons killed or injured, with prompt follow-up reports on any change in status.
- To assure the community that fumes from the explosion, though irritating, were nonpoisonous.
- To make public the fact that fatalities and injuries from the explosion were the result of blast and thermal burns, not chemical burns.

During the next three days, technical crews struggled to halt a decomposition reaction that was continuing in some vessels containing toxic materials. This added to the problem of keeping the community calm but still alert to the possibility of another explosion if those efforts failed. Throughout this period, Bricker and Johnson kept in close touch with local radio, TV and newspaper reporters.

At 3:30 p.m., April 19, the damaged unit was completely deactivated, and word was flashed immediately to all information media that Monsanto was returning to normal operations and regretted the discomfort and inconvenience it had inflicted on its neighbors.

Job Well Done: At a meeting in Charleston the following week, KVIEPC's president, Arthur Dunlap—supervisor of the process safety department at the South Charleston plant of Union Carbide Chemical Co.—accepted for the organization the top award of the West Virginia safety council, a "certificate of merit." And Soden thanked fellow members for Monsanto, adding that "I can't imagine how it could have been done better."

Dunlap, however, cautioned members that KVIEPC is still not fully prepared: "We do not have enough depth of people who know what to do in such emergencies." He proposed that shift superintendents at all 12 plants be coached on management's disaster duties.

Possibly the highest testimonial to KVIEPC's performance last month: Monsanto is now seeking to organize a similar council in the East St. Louis, Ill., area, where the company has several major plant units.

**This was the 10th anniversary of the ammonium nitrate explosion and fire that wreaked havoc at the Monsanto plant and other waterfront buildings at Texas City; and one task for Monsanto public relations people at Nitro last month was to re-emphasize for newsmen that the Texas City blast came from a non-Monsanto cargo in a non-Monsanto ship, with Monsanto involved only as a victim.

13 State Legislatures with Corporate Tax Changes in Mind

State	Status of Legislation	Provisions
Arkansas	Recommended by governor	(1) bill to increase from 10¢ to 15¢/ton the severance taxes on barite, bauxite, titanium ore, manganese, zinc ore, cinnabar and lead ore, (2) bill to increase tax on coal, lignite, gypsum, and chemical-grade limestone from 1¢ to 2¢/ton.
California	Introduced in legislature	(1) bill to permit accelerated depreciation in computing corporation net income, and (2) bill to adopt federal definition of taxable corporate income.
Florida	Recommended by governor	(1) bill to remove heavy industrial equipment from state sales tax exemption list.
Illinois	Introduced in legislature	(1) bill to broaden base of corporation franchise tax to include "earned surplus."
Indiana	Passed by upper house	(1) bill to double fee for filing incorporation papers, floating new stock issues and upgrading par-value of stocks.
Kansas	Awaiting governor's signature	(1) bill jumping state corporate income tax rate 50%.
Michigan	Introduced in legislature	(1) bill to levy 6% state tax on corporations in order to raise $132 million annually.
	Recommended by governor	(1) bill to repeal corporate franchise tax, and to provide other benefits for smaller firms.
Minnesota	Introduced in legislature	(1) bill to replace omnibus tax law. Reforms may reduce corporation tax burden.
Ohio	Introduced in legislature	(1) bill to include as real estate for tax purposes certain manufacturing equipment now assessed at 50% of true value (has been introduced annually for 10 years with no success).
Pennsylvania	Introduced in legislature	(1) bill to repeal Allegheny County's 10⅝-mill machinery tax.
South Carolina	Introduced in legislature	(1) bill to increase corporate taxes by 0.5%.
Texas	Introduced in legislature	(1) bill to establish a tax of three-quarters of 1¢ per 1,000 cu. ft. on gas produced from reserves dedicated by written contract—it would raise $35 million annually, (2) bill to levy tax of 9% of market value of natural gas at wellhead (current rate: 7%), and (3) bill to levy tax of 1/10 of 1% on manufactured goods made or brought into Texas. Would exempt up to $25,000 annually, and would raise $30 million/year.
West Virginia	Awaiting governor's signature	(1) bill to establish property transfer tax with $2.20 maximum (potential revenue: $5 million).

New Site Factor: 1957 State Tax Changes

Revising figures on the tax cost of doing business in various states and cities is becoming an annual chore for accountants of chemical process firms planning new expansions. Reason: state legislatures again (*CW, March 3, '56, p. 32*) are busy considering new corporate tax laws that, for better or for worse, will change the amount of state "take" from corporate coffers.

Of the states covered in a broad *CW* survey (*see table*), only California appears outstanding in its legislative efforts to reduce corporate taxes. But even here, chances of an actual reduction in state taxes are slim.

Accelerated depreciation in computing corporation net income and adoption of federal definitions of taxable income would save California firms some $40 million annually, but Gov. Goodwin Knight and legislative leaders are on record opposing any tax cuts.

In Minnesota, executive and legislative leaders are backing an industrial development program that includes tax reforms designed to make the state more attractive to old and new industry.

Although Minnesota's Gov. Orville Freeman is "optimistic" about the program's passage, he qualifies his optimism by adding, "Even if the program is turned down, the fact that tax reform was tried will have a healthy effect. It will tend to overcome the heritage of the '30s, when it was popular to make business the whipping boy for everything wrong in the state."

Natural Gas Fight: In Texas, proposed corporate tax changes center

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around the perennial question: Who pays the tax on natural gas—the producer or the transporter-customer?

Although reports indicate there's a strong possibility the Texas legislature will not pass a tax bill this year, the now-pending Joseph bill would be a serious blow to local chemical firms should it become law. It proposes a natural gas tax on the "beneficial owner," whereas the present production tax is collected largely from producers and landowners.

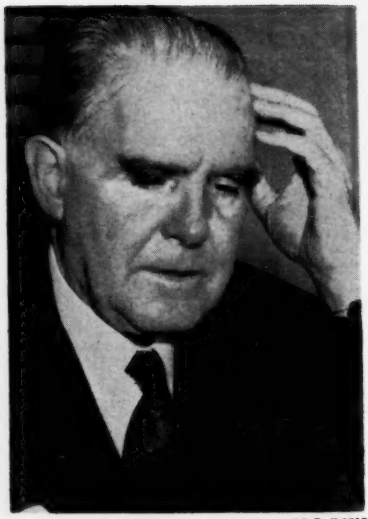
Another Texas bill, to levy a tax on gas produced from dedicated reserves (*see table*), meets approval of Gov. Price Daniel, who calls the tax necessary. "These dedication contracts," he declares, "are tieing up gas reserves in Texas, in many instances for as long as 20 years or more, and at least half of the reserves are being committed to out-of-state users. Such contracts and the privileges of withdrawal thereunder are valuable rights and properly taxable."

Industrial Rebellion: Industrial leaders in Pennsylvania and Michigan are meeting the possibility of new taxes full front with open attacks on corporate taxation in those states.

Clifford Hood, U.S. Steel president, has called on Pennsylvania businessmen to join together in assaulting the state's "unrealistic tax program." Citing U.S. Dept. of Commerce figures on tax percentage ratios among the several states, Hood points out that the Keystone state has the highest among the states in the Commerce survey—39% of total tax revenues for Pennsylvania in fiscal '56 came from direct taxes on business. This he sees as a deterrent to new business, and a threat to established firms.

Several industrial leaders in Michigan, led by General Motors' president, Harlow Curtice, and including Dow's president, Leland Doan, have labeled that state's taxes as being responsible for the emigration of plants to other states where taxes are "more favorable."

The outcome of many controversial tax bills is still uncertain. Obviously many bills unfavorable to industry will not be passed, while others will become law. With so many states considering additional tax levies on industry, the state-by-state cost of doing business will become an even more important factor in future chemical process industry expansion plans.



WIDE WORLD

JUDGE McGARRAGHY: He's using novel procedure to hear atom case.

LEGAL

Atomic Secrets in Court: Chemical process management with a stake in atomic energy is watching intently as a federal judge employs a seldom-used judicial procedure to hear an atomic patent case.

Methods of procedure and the success of various private attempts to secure sole rights to atomic patents may well have a significant effect on future private industry-federal government cooperation in this field.

The current case involves an attempt by Jerome Spevack (New Rochelle, N.Y.) to gain a temporary injunction to prevent the Atomic Energy Commission from publishing details of a process on which he has applied for a patent. Spevack contends that publication will automatically destroy his right to patent his process in many foreign countries.

Judge Joseph McGarraghy moved from the bench in federal court in Washington to his private chambers to hear arguments in the case when he learned that the case involves a patent for improved methods of producing heavy water and deuterium—important materials in the production of atomic energy.

Spevack obtained a patent on the heavy-water process, which he assigned to AEC. He applied for a patent on an improved process in 1950; and in compliance with the Atomic Energy Act, he disclosed the process improvement to AEC.

IDEAS

Foreign Operations and Human Relations: Process management will join with other industry leaders during the next six weeks in discussions of foreign operations and human engineering.

The International Management Assn. will hold a special conference May 22-24 in New York on such topics as exploring and developing markets abroad, analyzing and improving the profitability of foreign operations, and financial and tax dimensions in organizing for foreign operations.

June 17-21 in Stamford, Conn., Dunlap and Associates will hold its annual five-day course on considerations of human capabilities and limitations in design of equipment, consumer products, and workplaces.

•

Code of Ethics: Concerned that the demand for engineering graduates will lead to excesses in college recruiting, the American Society for Engineering Education and the Midwest College Placement Assn. have joined in preparing code of ethics on recruiting practices and procedures.

LABOR

Pay Patterns Emerging: Four new settlements suggest the outlines of mid-1957 wage patterns in the process industries. Over-all, the indication is for wage increases in the neighborhood of 5% on contracts made during the next few months.

• At Niagara Falls, N.Y., a three-year agreement between Union Carbide's Electrometallurgical Co. division and Oil, Chemical & Atomic Workers (AFL-CIO) calls for a total average wage boost of at least 30¢/hour over the life of the new contract. This will include first-year increases ranging from 10 to 16¢/hour and averaging 12¢; second-year hikes of from 8 to 12¢, averaging 9¢; and a third-year boost of 9¢/hour across the board. In addition, the pact provides for possible cost-of-living increases during the second and third years and an additional paid holiday. At the same time, the two parties signed a five-year agreement putting into effect for the approximately 1,800 employees at that plant Carbide's new pension plan.

• In oil refining and distribution, OCAW has settled for a 5% increase

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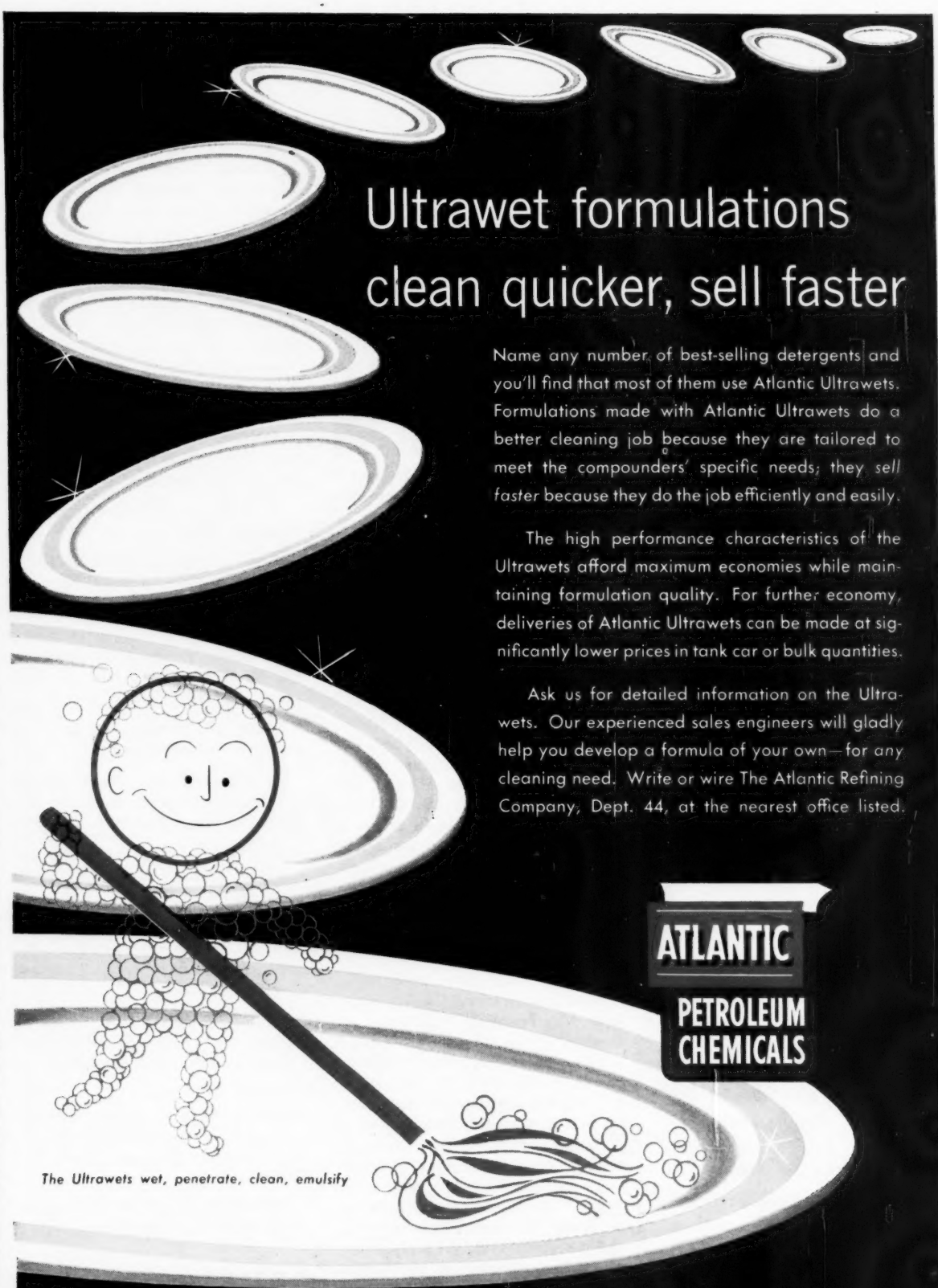

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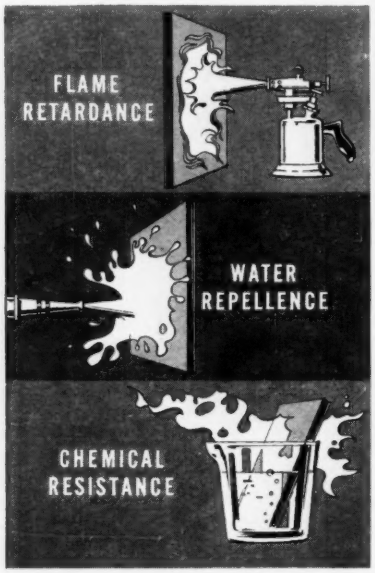

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BARGAINER BUGAS: On shorter work week, management opposition.

at Detroit (Pure Oil) and for 6-9% at Regina, Sask. (Consumers Cooperative Refineries Ltd.).

• Two professional-level unions have new salary agreements. At Whiting, Ind., the 350 employees represented by Research & Engineering Professional Employees Assn. finally accepted the 4% increase that had been offered by Standard Oil Co. of Indiana. The company's original offer would have been retroactive to Feb. 1. When that offer was rejected, the company stated that the 4% rise would be effective whenever an agreement was signed. The terms agreed on call for retroactivity to April 1.

•

Work-Week Battle: What may be the first indication of industrial management's opening stand on organized labor's bid for shorter work weeks with no drop in take-home pay comes from Vice-President John Bugas, of Ford Motor Co. Bugas—who headed the Ford negotiating team in the 1955 bargaining that led to the auto industry's first big agreement on supplemental unemployment benefits—warns that the unions' current economic goals involve "excessive" demands with serious inflationary dangers. He contends that the threatened inflationary spiral "is a wage-cost-price spiral, and not the reverse." In reply, President Walter Reuther, of the United Auto Workers (AFL-CIO), argues that present inflation stems from prices "arbitrarily set" by corporation executives to maximize profits.

KEY CHANGES

Carl G. Grace, to vice-president in charge of Toilet Articles Division, Colgate-Palmolive Co.

Thomas W. Mastin, to director, Lubrizol Corp., chemical additives manufacturers (Cleveland).

Robert E. Hulse, Roy F. Coppedge, Jr., and **B. C. Ohlandt,** to executive vice-presidents; and **Robert H. Cornwell, Alden R. Ludlow, Jr., Francis Olmsted, Stuart Schott, Robert E. Hulse** and **William P. Marsh, Jr.**, to vice-presidents, U. S. Industrial Chemicals Co. division; all of National Distillers and Chemical Corp.

John F. Connelly, to board chairman and president, Crown Cork & Seal Co. (Baltimore).

G. J. Ticoulat, to director, Crown Zellerbach Corp.

Edgar F. Kaiser, Arnold O. Beckman and **William G. Reed,** to directors, Stanford Research Institute (Menlo Park, Calif.).

D. G. Braithwaite, J. L. Gibboney and **H. R. Powers,** to directors, National Aluminate Corp. (Chicago).

Frank W. Dennis, to director, Hooker Electrochemical Co.

A. Lyndon Foscue, Birny Mason, Jr., and **Edwin B. Suydam,** to vice-presidents, Union Carbide Corp.

H. Milton Martin, Jr., to general manager, Western Chemicals Ltd. (Calgary, Alta., Can.).

Berkley Neustadt, to director; and **Boyd N. Everett,** to executive committee chairman; Liquid Carbonic Corp. (Chicago).

Edward A. Merkle and **Glenn E. Taylor, Jr.,** to directors, Michigan Chemical Corp. (St. Louis, Mich.).

George B. Coale, to vice-president; **Joseph H. Reid,** to general manager, and **Leo L. Lewis,** to production manager, Titanium Division; all of National Lead Co.

William R. Adams, to president, St. Regis Paper Co. (New York).

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C. Lalor Burdick, secretary, Polyfibers Committee, E. I. du Pont de Nemours & Co.

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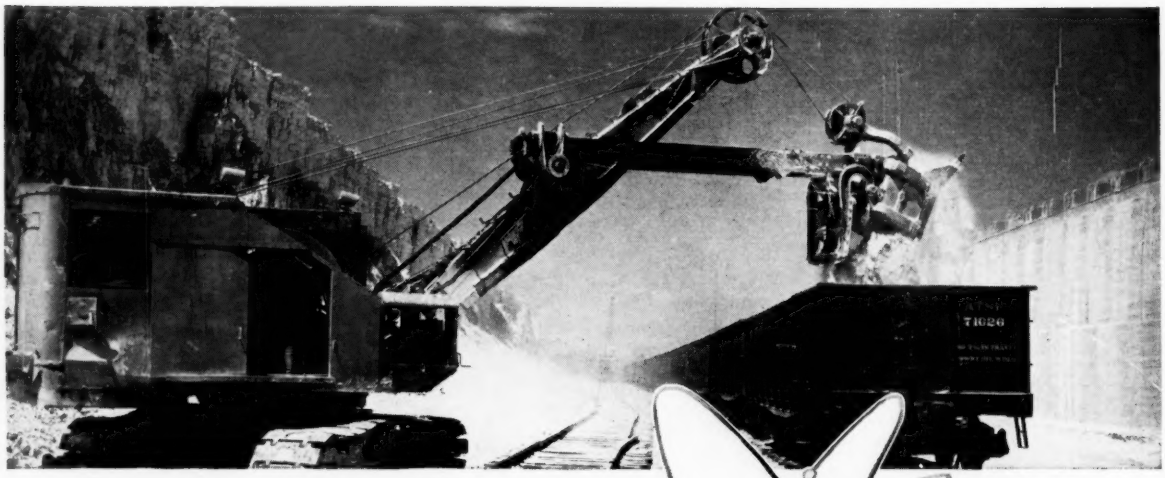

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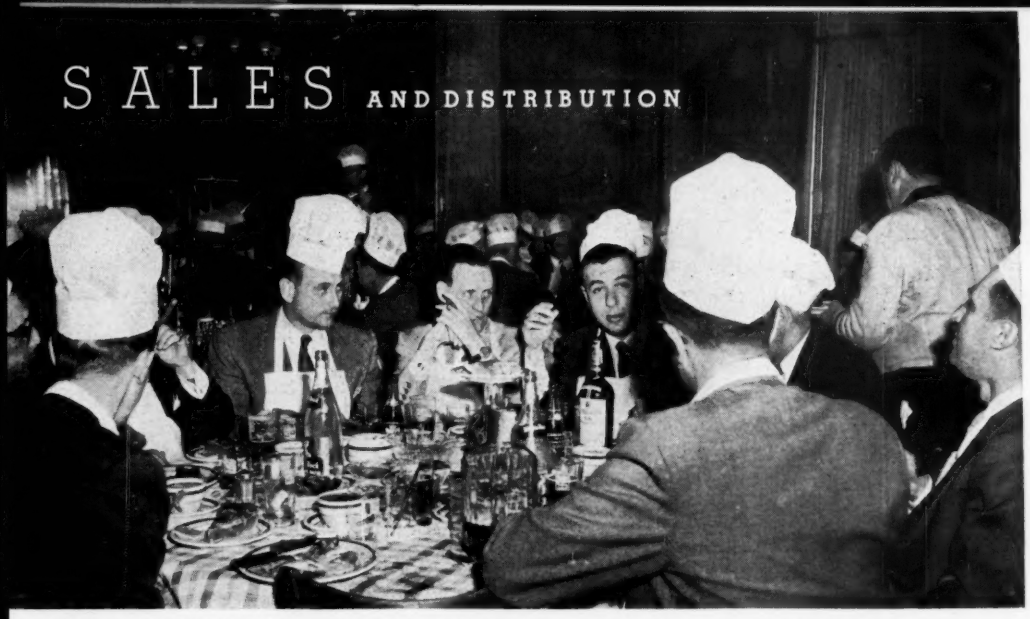


SOCIAL ACTIVITIES, like SAACI beefsteak dinner, will be important, though . . .

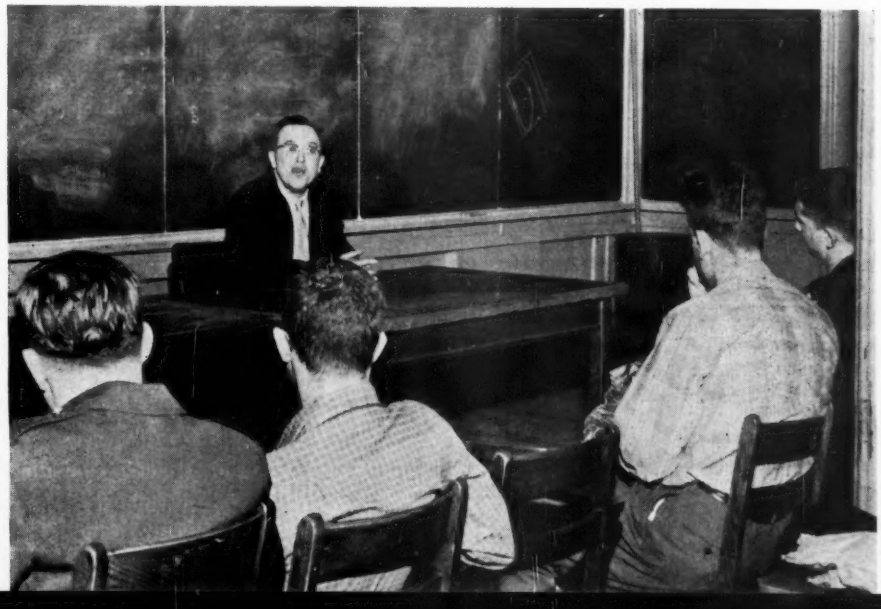
Sales Clubs Accent Professional Activities

Chemical industry clubs—the rosters of which contain large numbers of salesmen—are taking on a new dimension. These clubs have been largely social in scope, but now many are including more professional activities on their agendas.

The older salesmen's organizations are considering offering scholarships, underwriting sales training courses and films. Some take part in Chemical Progress Week programs, and are actively encouraging students to embark on sales careers.

The newer clubs, formed within the past few years, are striving for programs carefully balanced between social and professional affairs. And there's a definite,

SALES CLINIC once was SAACI's only professional activity.



BUT NOW SAACI, like many other regional clubs, is broadening its scope. Here, Brooklyn Polytech students weigh sales careers.

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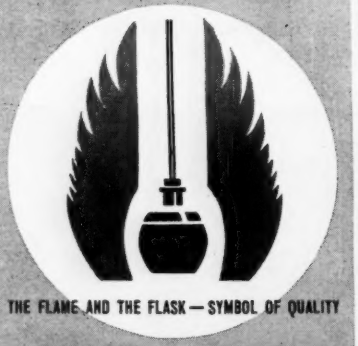

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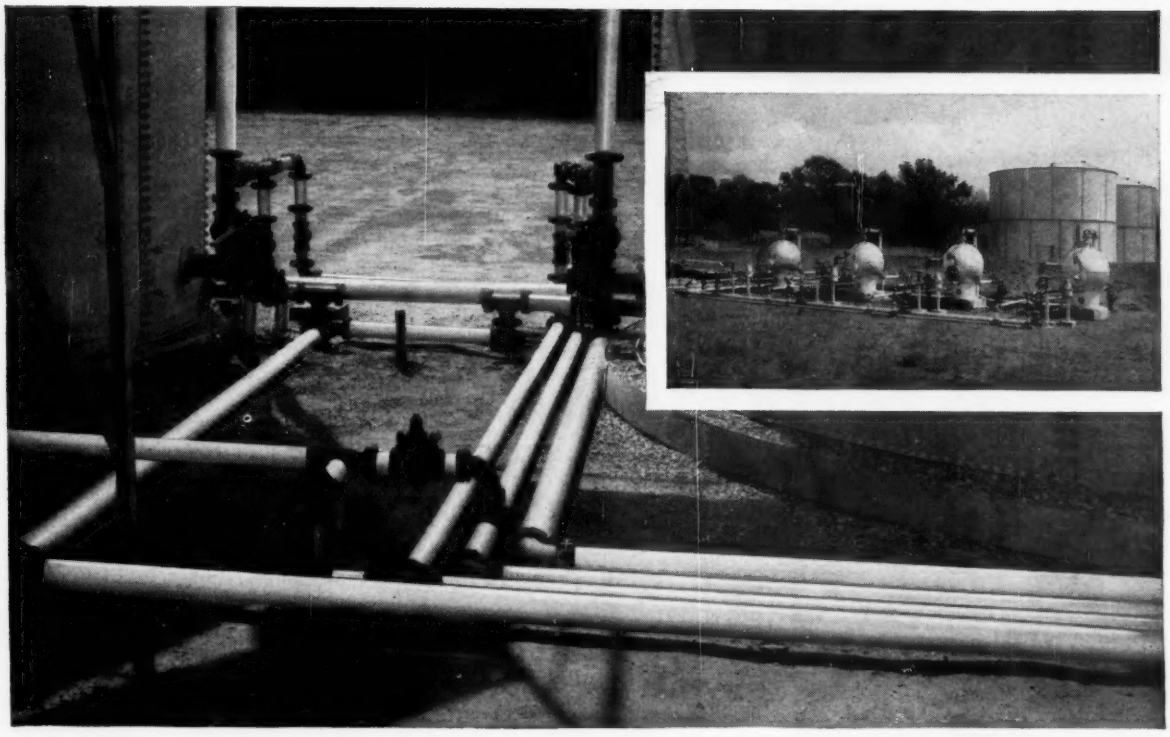
though limited, interest in forming a national chemical salesmen's association.

Here's what's happening across the country:

- Newer chemical sales clubs in Pittsburgh and Buffalo schedule educational talks (usually on sales) at their regular meetings. The Pittsburgh Chemical Marketing Club has formed the Pittsburgh Development Committee, which—for its first venture—is

CHEMICAL CLUBS FROM COAST TO COAST

NEW YORK	*Salesmen's Assn. of the American Chemical Industry.* Paul Slawter, G. M. Basford Co., 60 East 42nd St.
	Chemical Industry Assn., A. Stuart Powell, Jr., Reinhold Publishing Co., 430 Park Ave.
BUFFALO	*Salesmen's Assn. of Western New York Chemical Industry.* Harold R. Long, Solvay Process Division, Allied Chemical & Dye Corp., Milton Ave., Syracuse, N. Y.
BOSTON	*The Chemical Club of New England.* Irving Loxley, Heyden Newport Chemical Co., 511 Westminster St., Providence 3, R. I.
PHILADELPHIA	*The Chemical Club of Philadelphia.* William Bertolet, 3rd, Laurel Soap Mfg. Co., Thompson St.
BALTIMORE	*Baltimore Chemical Club.* John Emmerling, Lenmar Lacquers, Inc., 150 South Calverton Rd.
PITTSBURGH	*Chemical Sales Assn. of Pittsburgh.* Walter Bauer, S. H. Bell Co., 1515 Oliver Bldg.
	Pittsburgh Chemical Marketing Club. William Blackstock, Pittsburgh Coke & Chemical Corp.
CLEVELAND	*Chemical Salesmen of Cleveland.* E. A. McAdams, Monsanto Chemical Co., Hanna Bldg.
	Cleveland Drug and Chemical Club. Russell Elliot Jr., Elliot Sales Service Co., 1571 W. 117th St.
CINCINNATI	*Cincinnati Drug and Chemical Assn.* Larry Meiners, Geo. Nowland Co., 2833 Spring Grove Ave.
DETROIT	*Chemical and Allied Industries Assn. of Michigan.* Glenn Hicks, Monsanto Chemical Co., 18230 Grand River Ave.
CHICAGO	*Chicago Drug and Chemical Assn.* G. H. Reiner, Abbott Laboratories, North Chicago, Ill.
ST. LOUIS	*Associated Drug and Chemical Industries of Missouri.* E. T. Mann, Dow Chemical Co., 10 South Brentwood Blvd., Clayton 5, Mo.
	Drug, Chemical and Allied Trades Assn. William McMillan, 5200 Winona Ave., St. Louis, Mo.
MINNEAPOLIS	*Twin Cities Chemical & Allied Trades Assn.* Norman P. Anderson, Hawkins Chemical, Inc., 3100 Hennepen Ave.
HOUSTON	*Houston Chemical Club of Texas.* Sherman W. Clark, 1701 Houston Club Bldg.
SAN FRANCISCO	*Chemical Salesmen's Assn. of California.* A. Preston Young, Stauffer Chemical, 636 California St.



Aluminum Pipe Saves $284 on 600 bbl. Tank Battery Hookup

If you have a two-tank, 600 barrel storage battery, you can save from 25% to 30% on hookup costs as one Victaulic Coupling user did. How? By using Reynolds Aluminum Oil Country Pipe instead of T & C black line schedule 5 pipe.

Not only was Reynolds Aluminum Oil Country Pipe less expensive than the equivalent black line pipe, but it was easier to cut, groove, couple and handle; it will never need painting. Labor costs to install the hookup were cut about 40%. And these savings hold for a wide range of piping jobs in the drilling, production, processing and transportation fields.

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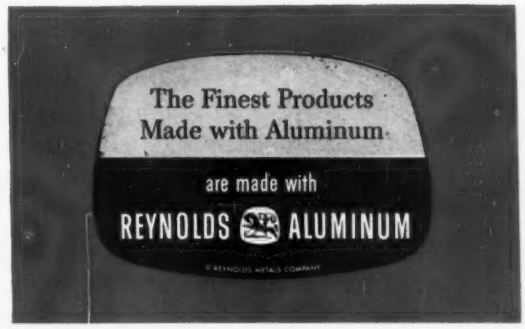
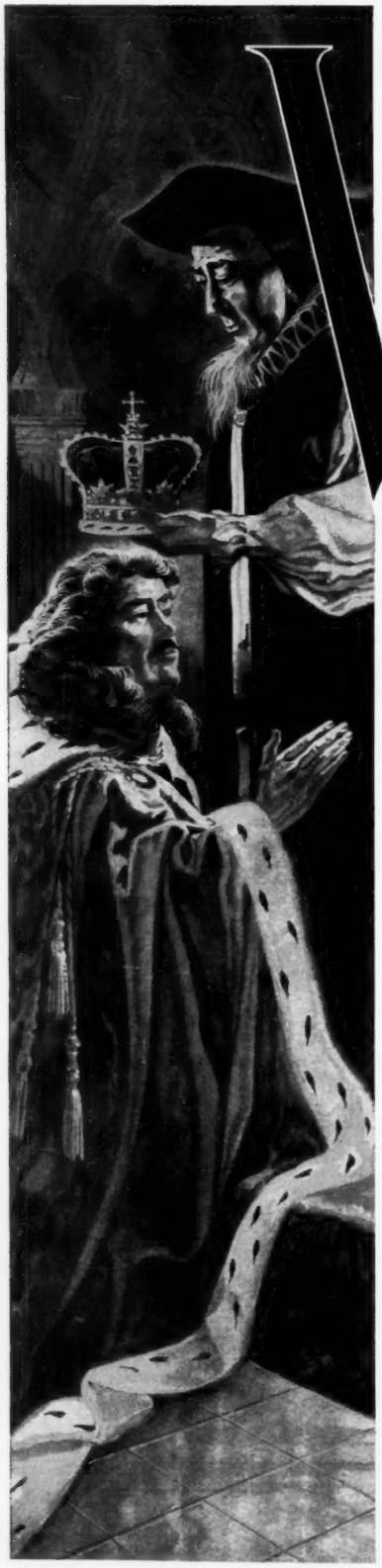
You'll find Reynolds Oil Country Pipe easy to get, too. It's stocked by leading suppliers throughout the oil country, and standard aluminum fittings are available from top manufacturers.

Get all the facts on how much you can save—in first cost, installation costs, and over-the-years maintenance and operating costs—with Reynolds Aluminum Oil Country Pipe. Phone your local Reynolds office (listed under "Aluminum") today.

Write for free brochure:
Reynolds Aluminum Pipe for Tank and Battery Hookup, Reynolds Metals Company, P. O. Box 1800-CM, Louisville 1, Kentucky



See "CIRCUS BOY", Reynolds exciting dramatic series, Sundays on NBC-TV.



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In 1660, Charles II wore a rich coronation robe of Virginia-grown silk . . . recognition of the Colony's loyalty to the crown during the Round Head era. Today, along the streets of Williamsburg and Yorktown, the gnarled, centuries-old mulberry trees that once fed silk worms are reminders of that pioneer textile industry. But Virginia's modern textiles, from cotton to synthetics, are booming . . . up more than 300%!

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preparing a census of the local chemical industry.

• New York's Salesmen's Assn. of the American Chemical Industry (SAACI) recently sent a speaker to a student chemical group to talk on sales careers. This is the first time the group has done such a thing. SAACI is considering adding courses and films on sales training to its present main professional affair—the annual sales clinic. It also has a Committee of Tomorrow charting growth. Clubs in Cleveland, Houston, Cincinnati, Boston, Detroit and Baltimore plan to continue their monthly winter meetings, which usually feature a talk on subjects of professional interest.

• The Cleveland Chemical Salesmen group and the Associated Drug and Chemical Industries of Missouri are thinking of establishing scholarships. Five scholarships are now given by the New England Chemical Club.

• Clubs in New York, Cincinnati, Minneapolis and Baltimore have recently begun to take an active part in Chemical Progress Week.

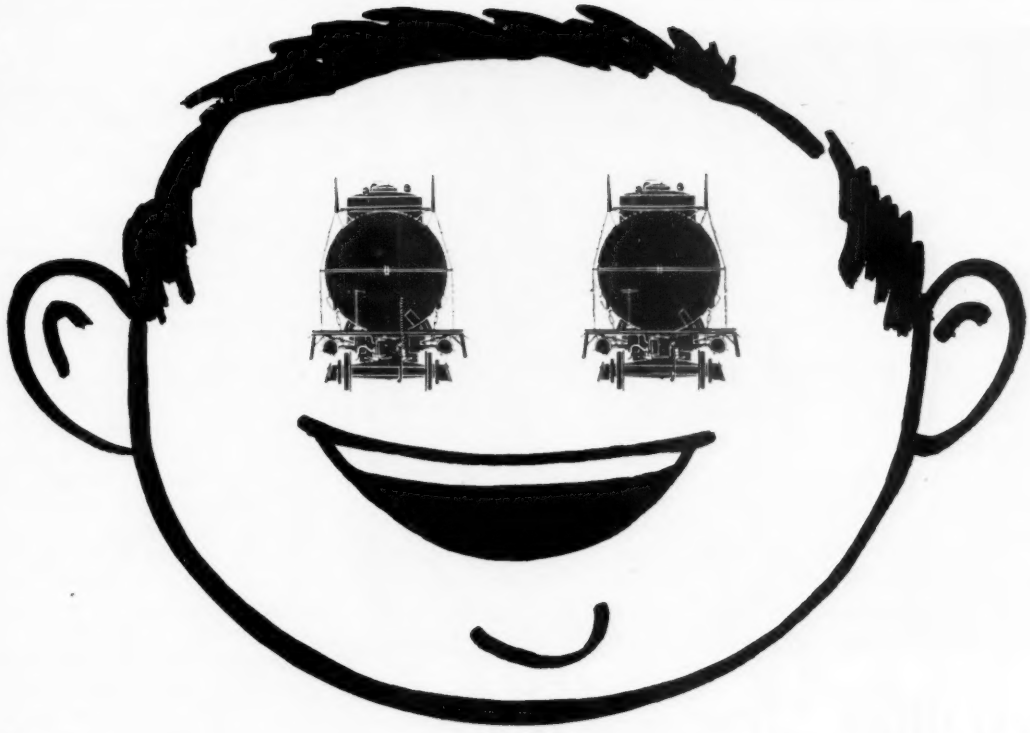
No Social Eclipse: Although there's a trend toward more professional activity, that doesn't mean that social affairs are being de-emphasized. The educational talks, sales clinics, scholarships and industry promotion constitute an addition rather than a shift in interest.

That's because social activity is the most important instrument used by the clubs to achieve their goals: stimulating contact and "good fellowship" among customers and competitors, promoting the general welfare of the chemical industry and—in the case of the strictly salesmen's clubs—improving sales ethics and efficiency.

Social affairs also serve as an effective, albeit informal, medium for exchange of ideas. Many club officers believe that the benefits derived from professional activity cannot equal those stemming from social action.

Golf outings and fishing expeditions during the summer, and dinner or luncheon meetings and Christmas parties during the winter, comprise the typical club's social agenda.

Who Belongs: Currently, at least 18 clubs have substantial sales personnel membership (*see box, p. 58*). But, although these generally have rosters with 50-90% salesmen or sales executives, only the groups with the word "sales" or "salesmen" in their titles



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consider themselves primarily sales organizations. Membership in the other clubs is generally open to those connected professionally with the chemical industry.

Salesmen's clubs restrict membership to sales personnel but generally allow a limited number of others to join. Other clubs have much more broadly defined eligibility requirements.

Membership has reached 800 in SAACI, 500 in the Chicago club, 366 in the Missouri organization. With the exception of the brand-new clubs at Buffalo and Pittsburgh, the others have between 100 and 200 members. Initiation fees are usually $15-$25, and members also pay $5-$15 annual dues plus the cost of individual dinner, luncheon, golf meetings, outings.

Going National? What are the prospects of formation of a national chemical club organization? None too bright at the moment. *CW* found some interest in that idea in New York's SAACI and the Baltimore club. SAACI's president, Vincent Rebak (Grace Chemical), thinks consolidation would boost the advantages of club membership. A national group could hold regional or national meetings, thus considerably broaden the base for personal contact. And more comprehensive social and professional activities could be carried out.

Other clubs, however, have either never weighed the idea or are opposed. Why? Because cross-country socializing is difficult to carry on, and dues tend to increase with organization size. And, since amalgamation might be construed as a step toward unionization, management might take a dim view of such a move. The high proportion of executives in most clubs, however, should discount that objection.

For much the same reasons, local clubs exhibit complete disinterest in affiliating with national sales organizations such as National Sales Executives, Inc. (NSE). Some believe that NSE's programs would prove too general for a chemical organization, that membership would be restricted to salesmen and sales executives only.

A national chemical association may come in the distant future. But for the moment, most clubs will stress the local, social and, now, professional activities that are spurring their rapid growth.

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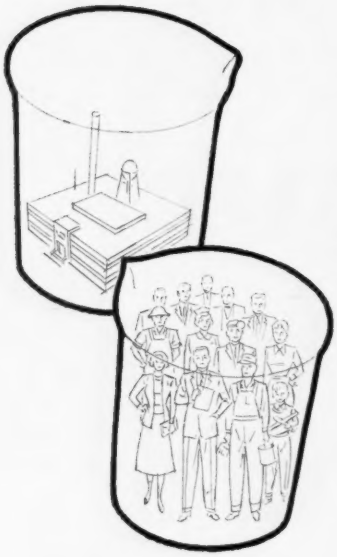

As the chemical and allied industries have grown in size and complexity, the task of relating a chemical company's policies and contributions to its many publics has grown considerably.

Increasingly, a *catalyst* is needed to "accelerate the desired reaction" between the company and potential users of its products . . . between company and financial community . . . between company and many groups of people affected (unawaredly or otherwise) by the chemical industry's progress.

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RATE REQUESTS

The following applications for reduced freight rates have recently been filed with the Interstate Commerce Commission under Section 4 of the Interstate Commerce Act:

• **Cleaning compounds:** Carload lots of cleaning, scouring and washing compounds moving from Baltimore, Md., and North Newark, Jersey City and Edgewater, N.J., to Charleston, S.C., and Jacksonville and South Jacksonville, Fla. Grounds: truck-barge competition and circuity. FSA Nos. 33607 and 33608.

• **Cryolite:** Carload rates on shipments from Chalmette and New Orleans, La., to Ravenswood, W. Va. Grounds: barge competition and circuitous routes. FSA No. 36612.

• **Ammonium sulfate:** Bulk and carload cargoes traveling from New Orleans, La., to St. Louis, Mo., and East St. Louis, Ill. Grounds: market competition and circuitous routing. FSA No. 33613.

• **Vegetable oils:** Carload shipments from southern Florida, Gulf and South Atlantic ports to destinations in the central U.S. railroad territory, including Ohio River crossings. Application applies only to import traffic. Grounds: port competition and relations and circuitous routes. FSA No. 33616.

• **Sodium and calcium products:** Carload shipments of sodium bicarbonate, package and carload lots of calcium chloride and tank-car movements of sodium hydroxide and calcium chloride from points in central U.S. and trunkline territories to points in northern Illinois. Grounds: short-line distance formulas, grouping, carrier competition and circuitous routes. FSA No. 33599.

• **Aluminum metals:** Carload quantities of aluminum billets, blooms, ingots, pigs and slabs in transit from Chalmette and New Orleans, La., to Lodi, N.J. Grounds: circuitous routes. FSA No. 33605.

• **Nitric acid:** Tank-car loads moving from Arkansas and Louisiana points to St. Louis, Mo., and East St. Louis, Ill. Grounds: circuitous routes. FSA No. 33582.

• **Salt:** Shipments of rock salt, loose-in-bulk carloads between Detroit, Mich., and Louisville, Ky. Grounds: competition and circuitous routing. FSA 33528.

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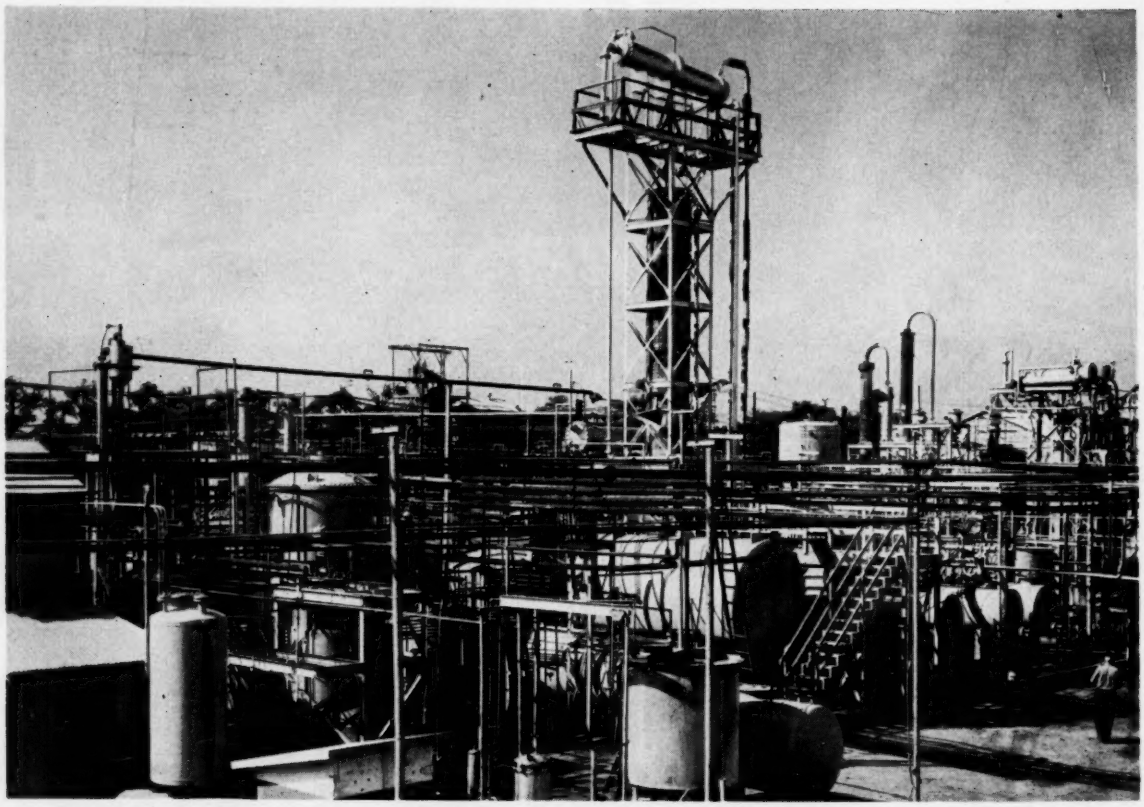


Brunswick plant's built-in flexibility and processing experience helped Hercules get . . .

Toluamide Off to a Flying Start

When summer vacationists and do-it-yourself home gardeners begin their seasonal search for insect-combating chemical specialties, chances are that many will be looking for the highly touted diethyl *m*-toluamide recently announced (*CW, March 9, p. 104*) by U.S. Dept. of Agriculture's Orlando, Fla., laboratory. And with the help of Hercules (*plant above*), chances are they'll find this insect repellent in lotions, aerosol sprays, cosmetic sticks.

Hercules started production of meta-Delphene* in Oct. '56, expects that its present plant will be able to take care of introductory needs this year. The company is now turning out drum quantities of the material, will put its first expanded plant into operation this summer. Even larger expansion plans are in the works to meet the demand that Hercules is convinced will follow meta-Delphene's commercial debut.

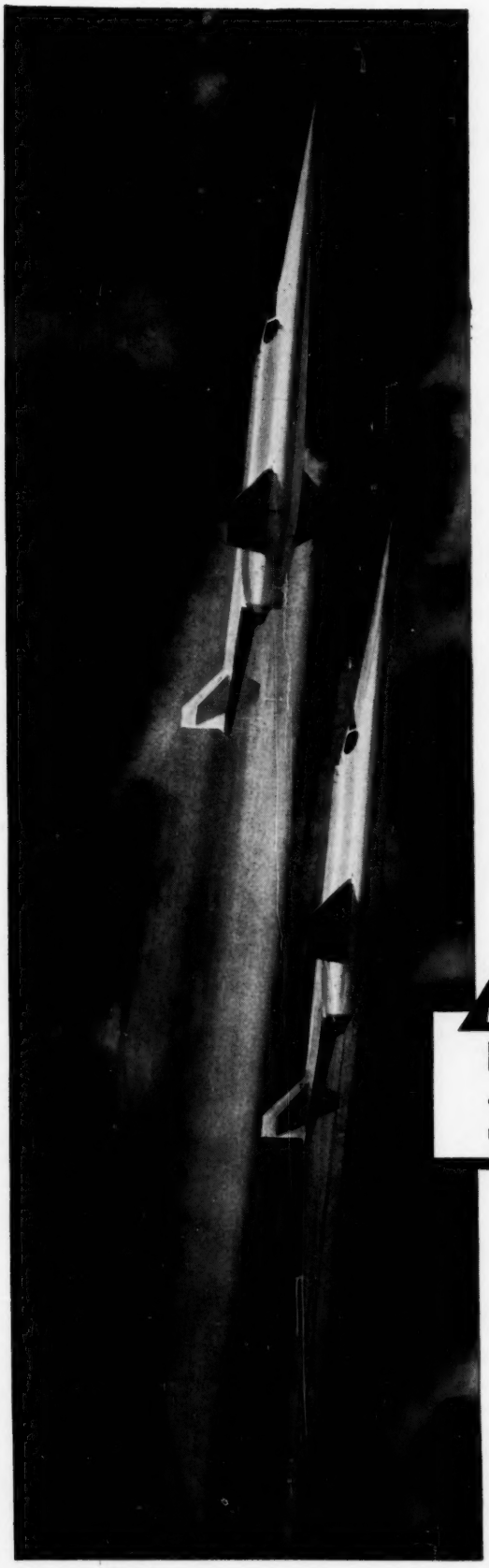
Running Start: Hercules' first experience with meta-Delphene came when it contracted to produce large-scale samples at its Wilmington, Del., research center for USDA's field-testing program. This work enabled the company to size up difficult purification problems and—with the help of two built-in advantages—to develop a commercial process for which it assembled a plant in just four months.

The first advantage was a ready source of high-purity starting material. Since the repellent properties of diethyl *m*-toluamide are impaired by the presence of impurities, isolation of the desired meta isomer is the most critical part of the process. And the Imhausen process, by which Hercules oxidizes xylene to toluic acid (*CW, April 6, p. 32*) at Burlington, N.J., permits ready isolation of toluic in very pure form.

The company's second big advantage: available equipment and a wealth of fractionation know-how gleaned from pine chemicals processing at its Brunswick, Ga., plant. By diverting several existing multipurpose units and adding a few new ones, it had a ready-to-run commercial plant in record time. And equally important, it had engineers and operators experienced in the production of hard-to-separate chemicals.

Raising the Standards: Taking up where USDA left off,

*Hercules trademark for diethyl *m*-toluamide.



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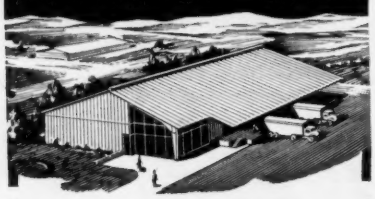

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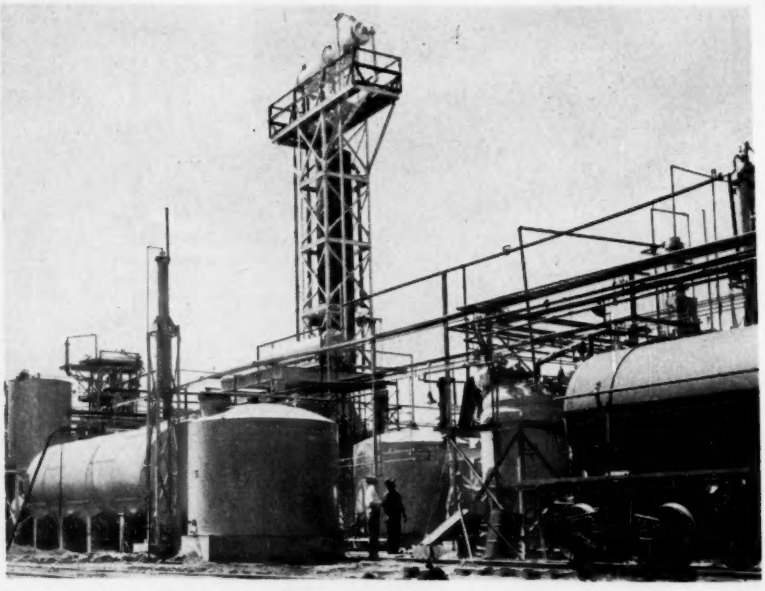
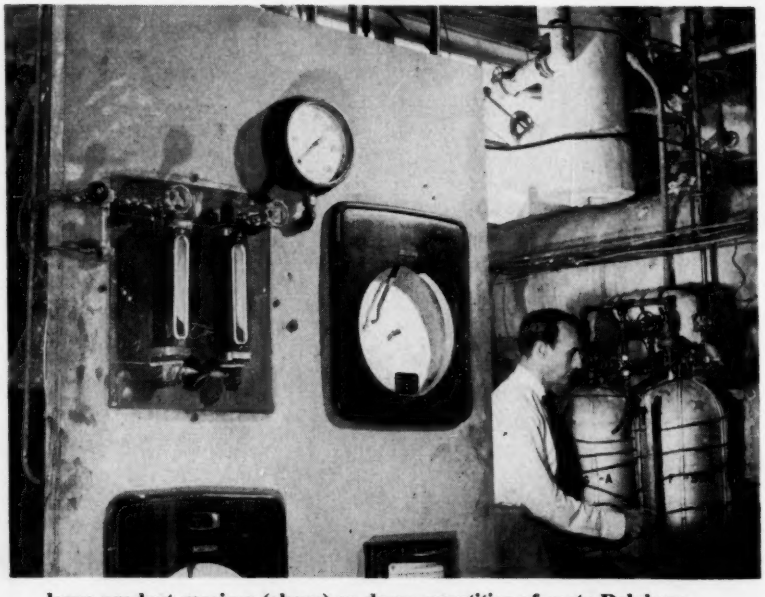


Toluic acid and diethylamine arrive at Brunswick in tank cars . . .



. . . leave product receiver (above) as drum quantities of meta-Delphene.

Hercules has incorporated a few novel twists of its own.

However, beyond describing the process as a straightforward reaction starting with purified toluic acid and involving diethylamine, it's not ready to disclose the tricky purification steps. But the physical characteristics of meta-Delphene indicate the direction in which Hercules has been working.

For one thing, the company has altered the composition from that originally recommended by USDA. Instead of 70% meta with 30% mixed ortho and para isomers, meta-Delphene runs about 85% meta and 15% para, is essentially free of ortho. Elimination of the ortho is desirable, says Hercules, because it tends to crystallize and brush off the skin, thereby reducing the persistency of the repellent. Though final specifications are still being worked out, Hercules is recommending that meta isomer content be not less than 80%.

Most of the other isolation steps

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In addition to the rapid development of water resistance with the new AMP-ammonia formulations, considerable savings in costs may be expected since less AMP is required. Other performance characteristics of the AMP-ammonia formulations such as shelf-life, freeze-thaw resistance, leveling, and gloss were fully equal to the best commercial formulations.

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In a series of tests, the new AMP-ammonia formulation attained "excellent water resistance" in less than *two-thirds the time* required, and at *one-third the cost for amine* when compared with a typical formulation using morpholine. A new technical data sheet describing these and other tests made with typical commercial formulations is available on request.

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are aimed at the removal of nonamide materials to make the repellent colorless, odorless and nonirritating. It's also essential to achieve a low moisture content to prevent deterioration of aerosol formulations packaged with halogenated hydrocarbon propellents.

Big Potential: Off its record to date, meta-Delphene stands a good chance of carving a big niche for itself in the repellent market. It provides better protection against ticks and certain other insects than do other repellents now on the market, says Hercules, and should find broader application. A major target area: construction, agricultural and other outdoor workers. With these to swell the already growing specialty formulations of meta-Delphene (S. C. Johnson recently added an aerosol form of its lotion repellent, Off!), the stream now flowing from Hercules' Brunswick plant may soon become a torrent.

PROCESSES

Ore Upgrading: R-N Corp., owned jointly by Republic Steel Corp. and National Lead Co., has announced the development of a direct reduction process of converting both low- and high-grade iron ores into high-metallic iron feed materials. Originally devised by National Lead for the treatment of titaniferous ores, the process has been piloted at Republic's Spaulding Mine (Birmingham, Ala.) to produce 5- to 25-lb. briquettes for open hearth, electric and cupola furnaces, "peach seed" briquettes for blast furnace use. Applicable to a wide range of ores, the R-N process is said to utilize any readily available, solid carbonaceous fuel, to reject most of the phosphorus present in the ore.

•

Top-Blown Steel: Gusstahlwerk Witten AG. (Ruhr) has just put into operation the first German oxygen crucible furnace. Employing the Austrian Linz-Donawitz top-blowing process (*CW, Jan. 26, p. 94*), it converts raw iron into steel by blowing almost pure (98%) oxygen into the molten metal from above, at temperatures of 2500-3500 C. Unlike other furnaces, the L-D unit is said to require no input of energy derived from gas, oil or electricity.

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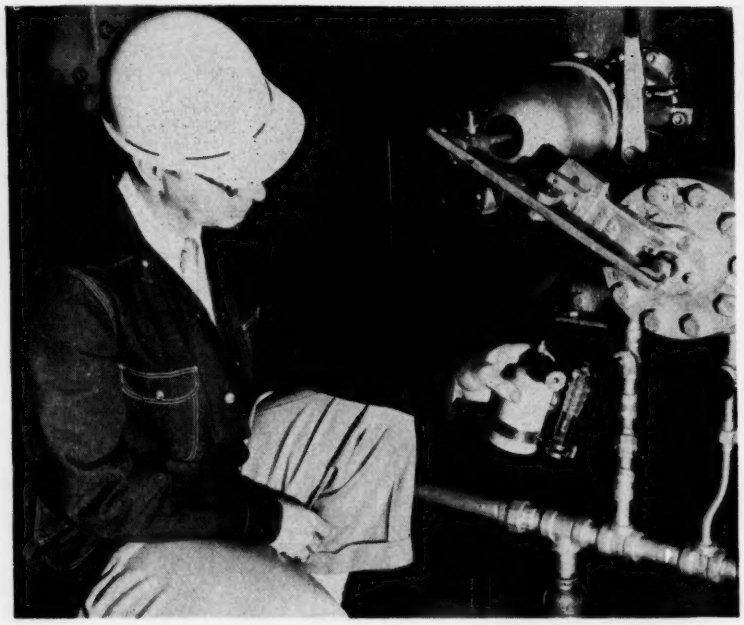


Canned Power Gets the Air

When the operator opens the valve on the aerosol can (*above*), he won't kill any insects or get billowy lather for a shave. Instead, he'll be operating the latest thing in air sampling devices—the Uni-Jet Air Sampler. Developed by Du Pont and turned over to Union Industrial Equipment Corp. (White Plains, N.Y.) for commercial exploitation, the unit was unveiled last fortnight at the St. Louis meeting of the American Industrial Hygiene Assn. by Robert Kohn, UIE prexy.

Weighing less than 2 lbs., the unit replaces cumbersome, conventional air samplers with their hand- or motor-driven pumps and dry-gas or flow meters. Its size permits sample collection in confined areas. And, the worker can fit the unit into a carrying case, strap it to his belt so that he can work unimpeded. A piece of laboratory hose extended from sampler to the worker's collar allows air to be sampled at face level.

Uni-Jet has no moving parts, uses nonflammable, nonexplosive Freon 12 for operating power, so it can be used for sampling anywhere in the plant.

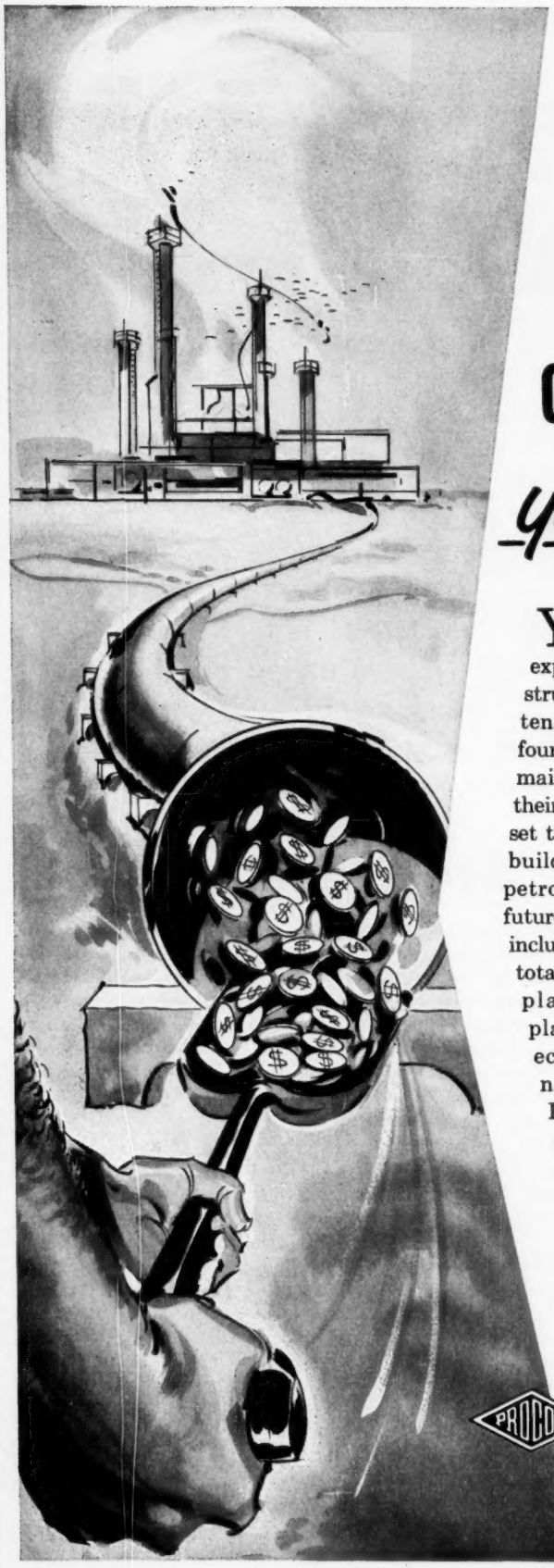
The operating key is a microventuri-type aspirator attached to the valve of the Freon can. It ejects the propellent at high speed through its jet, creates a vacuum in the 40-ml. glass impinger to suck in the air.

An orifice plate (four different sizes—0.012, 0.010, 0.008 and 0.006 in.—come with the sampler) inserted between propellent can and venturi controls operating pressure and sampling rate. (Calibration charts are supplied.)

The air sample bubbles through a test solution in the impinger. The user, by making up the proper test solution, can have impurity concentration registered by color change, or can analyze for impurities in the laboratory. When a dust particle count or radioactivity survey is made, a standard Millipore filter attachment replaces the glass impinger.

The basic unit — identified as Model 175 — complete with carrying case and two 1-lb. cans of Freon (10-14 cu. ft. sample or over eight hours' operation with a 0.006-in. orifice) costs $65. Millipore filter attachment is extra. Additional cans of Freon — standard units used in the refrigerant trade — are sold by UIE for $1.75 each.

Uni-Jet's novel approach to air sampling was an eye-catcher at St. Louis. But it should prove to be more than a novelty to industry.



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CROSS-SECTION model of Westinghouse arc furnace demonstrates how . . .

Atomic 'Eye' Positions Ingots

For the production of pure titanium metal in its new cold-hearth arc furnace, Westinghouse needed a foolproof control capable of "seeing" the actual level of a 12-in. titanium ingot through 15-in.-thick metal furnace walls. With the help of a mock-up (*above*) of the actual furnace, Westinghouse scientists came up with the answer—a gamma-ray control.

It regulates the ingot's position, according to the amount of gamma radiation passing through the molten-metal zone.

Source of the penetrating gamma rays is a small needle of cobalt-60 housed in a 4-in.-thick lead bomb (*at left*). High-energy rays passing through the furnace are detected by two scintillation counters (*at right*), are converted into electrical pulses that actuate a hydraulic ingot-positioning system. If the ingot is too high, it blocks the beam, reduces the flow of gamma rays; if too low, it permits more of the beam to pass through to the detectors.

The whole system is so precise, says Westinghouse, that it can detect and maintain the ingot level to within 0.01 in. of its ideal operating position. In the event that ingot movement exceeds prescribed limits, the gamma-ray control can cause immediate shutdown of the furnace.

EQUIPMENT

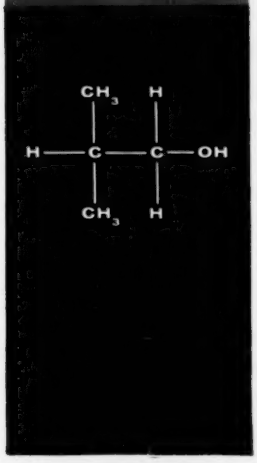
Titanium Pump: Add to the list of titanium pump and pump-part makers (*CW, April 13, p. 33*), Jabsco Pump Co. (Burbank, Calif.). Jabsco offers a pump with titanium shaft for handling ferric chloride. All-titanium pumps are being studied.

•

Air Compressor: Ingersoll-Rand Co. (New York) is out with a new Channel-Flo air compressor that's said to be safer, more compact. The unit is flange-mounted directly on the driving motor, eliminates belt drive, requires less than half the floor space of tank-mounted, belt-driven units. The two-

Where can you use this low-cost raw material for C_4 alcohol requirements?

isobutyl alcohol



If you are currently using or planning to use butyl alcohol as a solvent or an intermediate, it will pay you to consider Eastman's isobutyl alcohol. This low-cost product offers the possibility of worthwhile savings in formulating lacquers and hydraulic fluids, manufacturing butylated resins and adhesives, or wherever a C_4 alcohol is required.

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Nuclear Purifier: Permutit Co. (New York) has come up with a disposable package ion-exchange unit, which, it says, reduces the cost of removing radioactivity from water. Contaminated water is passed through the resin bed where the radioactivity is adsorbed, concentrated. The unit, model XP15, is 15 in. in diameter and 40 in. high, may be used for cation- or anion-exchange, mixed-bed demineralizing. Organic impurities may be filtered, adsorbed using granular activated carbon. The purifier uses snap-joint couplings.

•

Insulation: Thermasil is Ehret Magnesia Mfg. Co.'s (Valley Forge, Pa.) new line of pipe and block insulation for temperatures up to 1200 F. The molded insulation is a calcium-silicate compound, blended with other inorganics, reinforced with long-fiber asbestos. Pipe sizes up to 18 in. use regular insulation, over 18 in. use segmental forms. Block insulation comes in 18- and 36-in. lengths, 6- and 12-in. widths, and 1½- to 3-in. thicknesses.

•

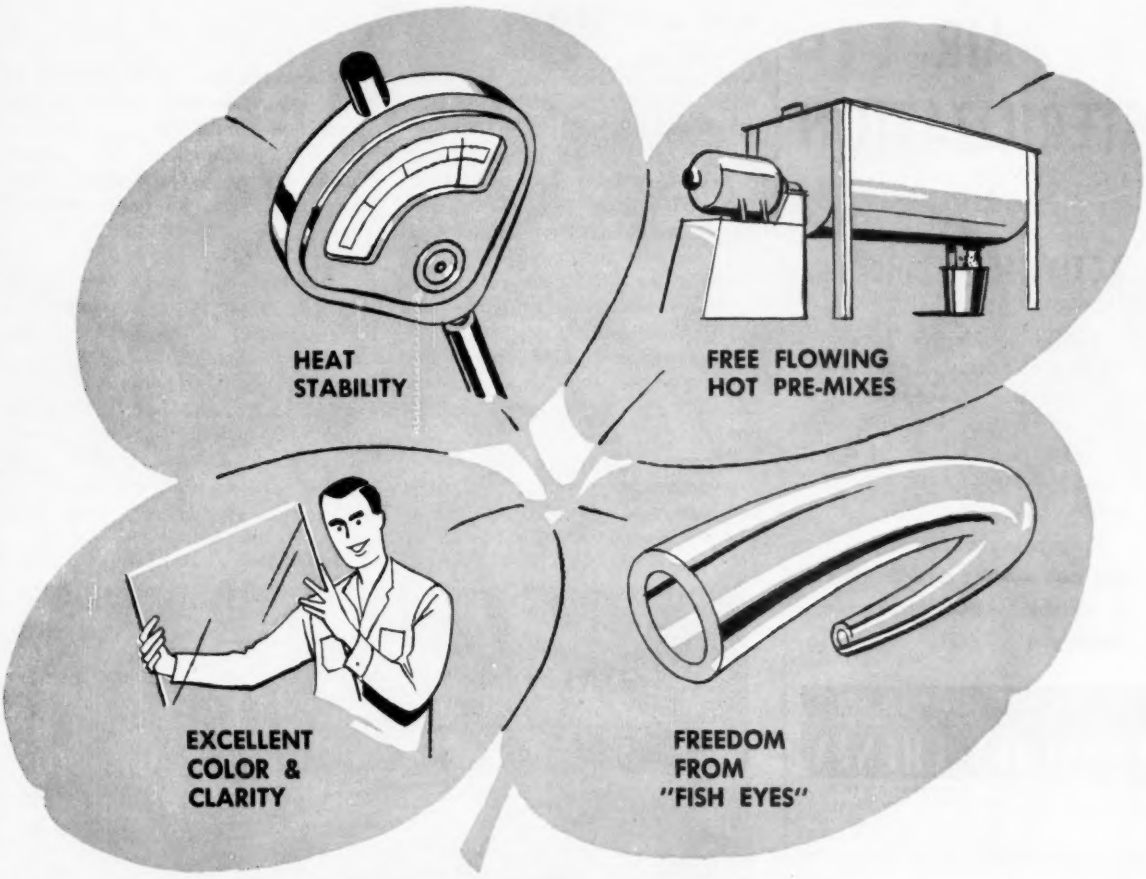
Aluminum Stair Tread: Alcoa (Pittsburgh) offers a new cast-aluminum stair tread for stairs subjected to extreme weathering or corrosive atmospheres. Three finishes—as-fabricated, sanitary and marine—are available.

•

Time Switch: For automatic control of intermittently operated equipment, Zenith Electric Co. (Chicago) has developed a new time switch that will handle 48 "on" and 48 "off" operations in 24 hours. Time periods are set by trip levers on the control dial. Dial is scaled in 15-minute graduations, can be provided with a calendar-cutout switch for nonworking days.

•

Solid-Liquid Contactor: A new, continuous horizontal contactor featuring slow-motion agitation is available from Gifford-Wood Co. (Hudson, N. Y.). Designed for large-scale solid-liquid extraction, the basic unit is a horizontal trough containing an uninterrupted, helically shaped paddle. Troughs are connected in series for desired contact time, can be covered,



LOOKING OVER A 4 LEAF CLOVER

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sealed and jacketed. Solid and liquid additions and removals can be made at selected points.

•

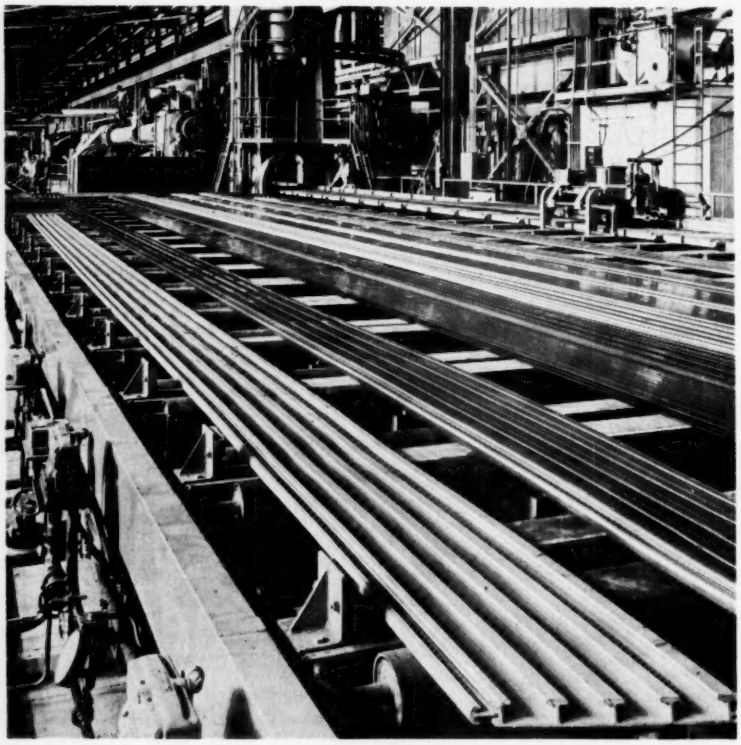
Tank Rebuilding: Haveg Industries, Inc. (Wilmington, Del.) is now completely rebuilding worn-out tanks in the field with plastics. The old tank serves as a mold for the plastic, can be removed after the lining has been applied. Lining materials offered: asbestos-filled phenolic or furan, graphite-filled epoxy, glass-reinforced polyester.

•

Cryogenic Valves: A new series of low-temperature (—320 to —250 F) and high-pressure (3,000 psi.) motor-operated shutoff valves is offered by Hydromatics, Inc. (Cedar Grove, N.J.). The valves are said to give bubble-tight flow control for materials such as oxygen, nitrogen, air, helium, liquid oxygen, liquid nitrogen, liquid air. Design is of the floating-ball seat type. Sizes: ¼ to 1½ in.

•

Disc Feeders: Manufacturers Equipment Co. (Dayton, O.) has announced a new series of variable-speed disc feeders for batching and proportioning operations with crushed or ground dry material. Agitation pins on the discs keep material free-flowing; paddle-type models are available when greater agitation is needed. Small units feed up to 1 ton/hour; large units up to 80 tons/hour.



Putting the Pressure on Magnesium

To squeeze magnesium into more military and civilian structural applications, Dow Chemical Co.'s Madison, Ill., rolling and extrusion mill has just put into service the world's largest magnesium extrusion press. Equipped with a 3,000-ton piercer, 1,000-ton stretcher and other auxiliary equipment, the 13,200-ton-capacity giant can produce such large-size extrusions as 9- to 20-in.-wide integrally stiffened sections (*above*), 11- to 28-in. I beams and 10- to 24-in. O.D. tubing. Originally built by Hydraulik (Duisburg, West Germany) for Germany's World War II aircraft program, the press now produces large-diameter missile bodies for the United States Air Force.

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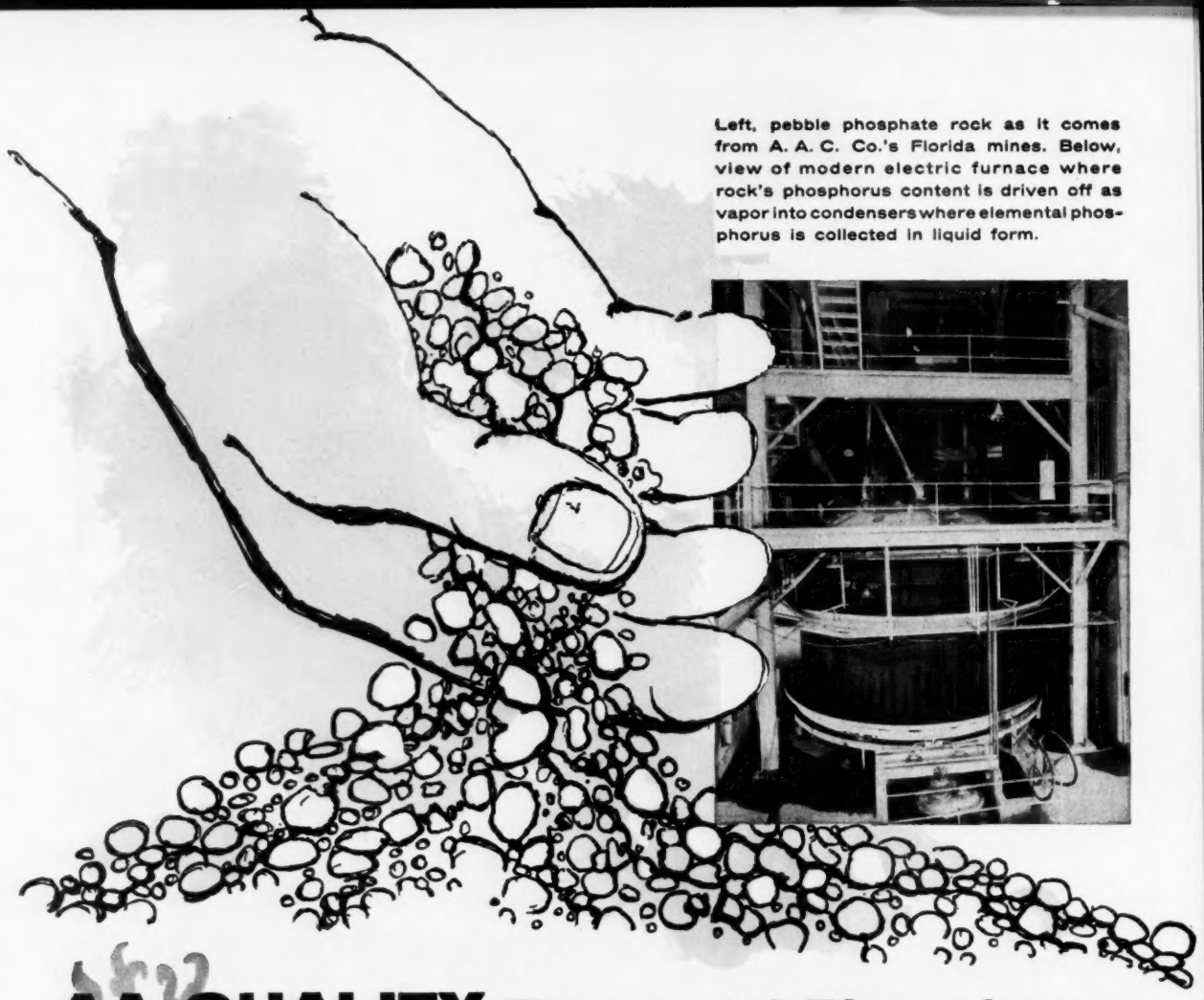
Left, pebble phosphate rock as it comes from A. A. C. Co.'s Florida mines. Below, view of modern electric furnace where rock's phosphorus content is driven off as vapor into condensers where elemental phosphorus is collected in liquid form.



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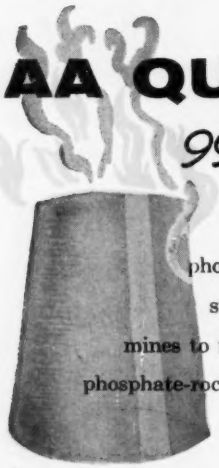

Elemental Phosphorus cake

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Technology
Newsletter

CHEMICAL WEEK
May 11, 1957

Add Eastman Kodak to the highly significant polycarbonate (*CW, April 6, p. 96*) field. It has recently captured a string of patents (U.S. 2,789,509 and 2,789,964 through 2,789,972).

Eastman hasn't made the specific compounds made by General Electric and by Bayer. But the chemistry is fairly close. The principal difference is that Eastman seemed to be concentrating on crystalline polymers, presumably in an effort to uncover a film- or fiber-forming polymer like the polyesters Dacron or Mylar.

•

Two German developments disclosed at the Hannover Fair:

• Ferdinand W. Wagner (Andernach), a producer of plastics building materials, displayed a polyester sheet reinforced with glass fiber that's flameproof. Tradenamed Scobalit-SL, the material will not catch fire when exposed to a welding torch flame of 2000 C. (In the U. S., Hooker Electrochemical pioneered flameproof compounds of that type with its Hetron resins.)

• Siemens and Halske AG (Munich) introduced a camera that can photograph the interior of furnaces operating as high as 1800 C. Water-cooled, it covers an angle of view of 70 degrees.

•

The $500,000 shale oil pilot plant using the Aspeco process started up early this month. The project is being run by the Denver Research Institute for the Oil Shale Corp. of Beverly Hills, Calif.

If the project pans out, Oil Shale Corp., which has a license to the Swedish Aspeco process (*CW, June 23, 1956, p. 60*), intends to license it to others. "And if no one is interested," says President H. E. Linden, "we'll build a commercial plant ourselves."

Denver Research has already made some modifications for the Aspeco process. Porcelain balls about the size of walnuts are pre-heated to 1,200 F., fed countercurrently to crushed shale through the retort. Retorted oil and gases are cooled and separated. The hot tailings are used to pre-heat the porcelain balls.

•

Phosphorus and boron additives continue to be the big push in refiners' research and promotion. The two latest: Standard (Indiana) and Richfield:

• Indiana this week unveiled its new ("100% science-fashioned") Gold Crown gasoline. Among the science fashioned ingredients are two additives, both unidentified. Patents on both have been applied for. One, SA-510, is intended to prevent corrosion in the fuel system. The other, SA-550, to prevent surface ignition and spark plug fouling. It's a

phosphorous compound and will be made by a member of the Standard family "other than Amoco" (the newly formed chemical subsidiary).

• Richfield last week started a heavy promotional campaign for Richfield Boron, its new premium gasoline (replacing Richfield Ethyl). The boron additive is licensed from Standard (Ohio) and is exclusive in Richfield's territory.

•

American Potash and Chemical is making decaborane in a pilot plant at Henderson, Nev. The unit, it reports, is the first "known, commercial" facility for making the compound.

Not very much has been said about decaborane. But Peter Colefax, Ampot president, reports: "It has significant potential applications in both civilian and military uses." Highly reactive, it generates 28,000 btu./lb. on combustion. This high heat of combustion has led to a considerable amount of interest in it for use as a fuel in missiles.

Ampot is not saying how it is making the chemical. The classical approach has been from diborane (*CW Technology Newsletter, July 7, '56*), which, in turn, is presumably made from boron trichloride and sodium borohydride.

•

The Sodium Reactor Experiment (SRE) being developed by Atomics International produced a sustained nuclear chain reaction last week.

The reactor, rated at 20,000 kw. of heat, operated at approximately one kw. during the start-up test. After it has undergone shakedown, and once its operating characteristics are delineated, heat will be sold to Southern California Edison to generate about 6,500 kw. of electricity.

•

Three tons of container for three pounds of product. That unlikely ratio was what was needed for a shipment of cobalt from the Atomic Energy's Brookhaven National Laboratory at Upton, Long Island, to the radiation section of Cities Service's new laboratory in Cranbury, N. J.

The cobalt was irradiated in the Brookhaven reactor and encased in a 3-ton lead pig. Cities Service will use the metal in its long-range research program, will try to determine the effects of gamma radiation on refining processes as well as on existing fuels and lubricants.

•

Researchers at Sloan-Kettering Institute for Cancer Research (New York City) have managed to destroy the function of a hormone without removing the gland that produces it. This, as they point out, could have far-reaching implications. The pituitary gland, for example, manufactures a wide variety of hormones that have an influence on a number of other glands and functions. Up to now, it has been necessary to remove the entire gland to block the effects of one of these hormones. The recent work may open up methods of blocking off the effect of a specific pituitary hormone without affecting the gland's other secretions.

This man divides by 3 to stretch glycol dollars

(Loading superintendents put advanced methods to work)

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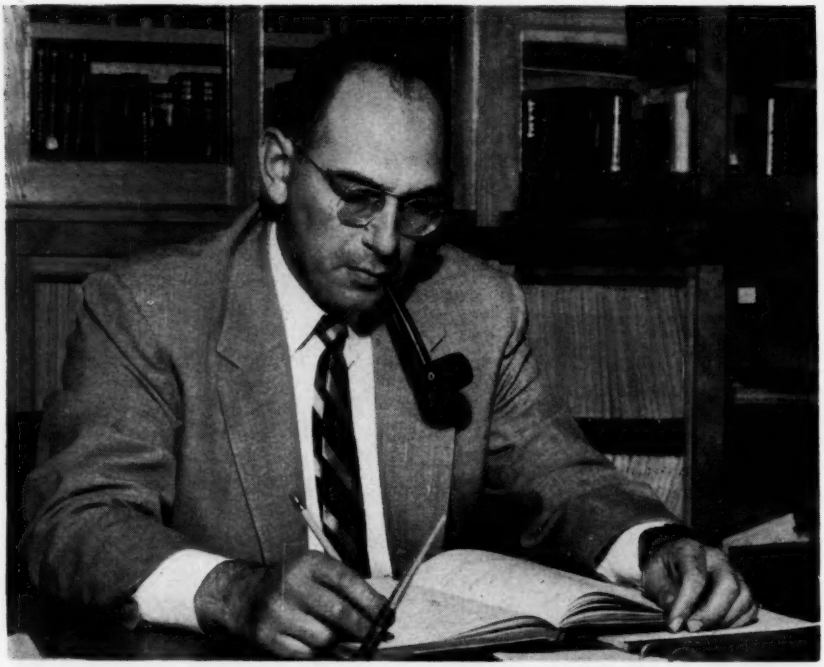
One midwestern resin maker, for instance, uses diethylene glycol in polyesters, as well as glycerine and propylene glycols. His requirements call for less than carload quantities, yet he buys at full tank-car prices. It's simple mathematics.

One of our loading superintendents makes use of a three-compartmented tank car. Thus, this one car takes on the glycols . . . carries all three to the customer at the carload quantity purchase price.

This isn't unusual. It's just typical of the advanced methods and techniques that give Dow customers more for their money in many ways. For, large or small, the chemical user benefits from a forward-looking plan that is geared to tomorrow's needs . . . today. THE DOW CHEMICAL COMPANY, Midland, Michigan, Dept. GD 811A-1.

YOU CAN DEPEND ON DOW



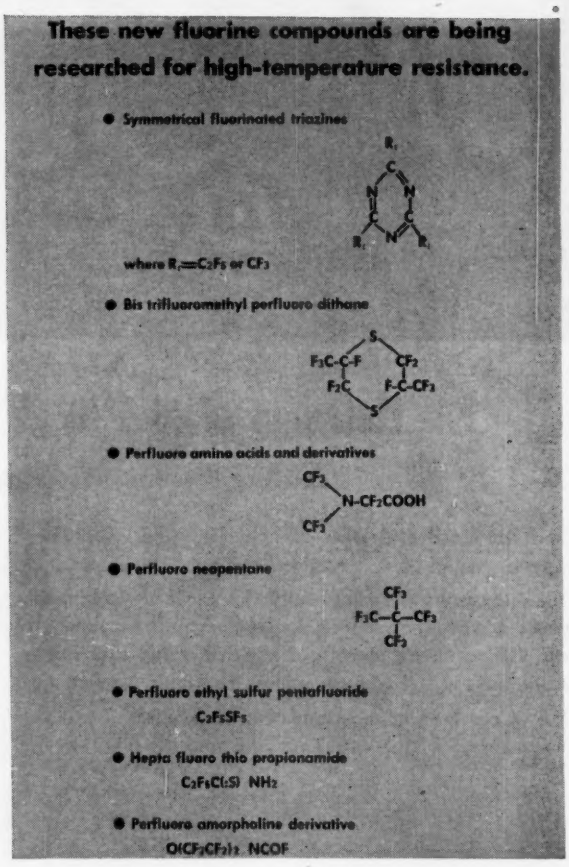
U. OF FLORIDA'S TELLER: More basic research, lower materials costs—his key to new fluorides.

Floridians Track Tougher Fluorides For Hot-Spot Jobs

While the best of the current fluorine-containing plastics can withstand 400-500 F temperatures, they're not quite sturdy enough for some applications. This week, a group of researchers at the Engineering and Industrial Experiment Station, University of Florida (Gainesville), is working hard to remedy that situation. Through extensive synthesis and evaluation of heteroatomic fluorine compounds (*right*), they've turned up one that is stable at 700 F, others that have also been unknown.

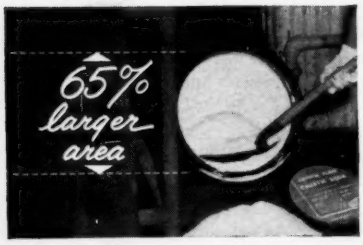
Spearheading this effort is Aaron Teller, acting head of the university's department of chemical engineering. There are four group leaders (with 12 assistants) in the fluorine project, one consultant—Joseph Simons.

Teller's goal: compounds that will be stable up to 1000 F, resist corrosion, retain flexibility at low temperatures in high-speed aircraft and similarly demanding applications. Admits Teller, "It may take considerably more



BRIEFS for buyers of

Caustic Soda
Sulfur Chlorides and Oxychlorides
Caustic Potash



New caustic soda drum empties faster

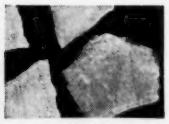
Whether your operators scoop, pour, or shovel caustic soda from drums, they'll find our new drums easier, faster and safer to work with.

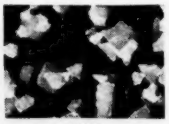
The lids on these drums have been increased from 14 to 18 inches in diameter—an increase of 65% in opening area.

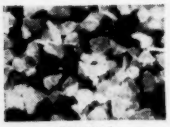
You pay no extra for this new drum. So, if you've been paying a premium to get full open-head drums, you can now get many of the advantages of a larger opening at standard prices.

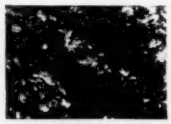
One thing you *won't* find changed on the Hooker drum is the lid seal. Six sturdy lugs grip the lid tightly to protect both contents and handlers.

You still have a choice of four flake sizes (shown actual size):


REGULAR


FINE


CRYSTAL


GRANULAR

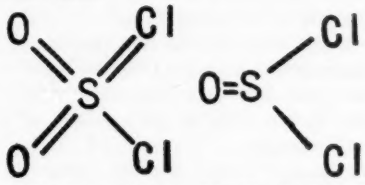
Something else that has not changed is the high quality of the caustic soda going into the drums.

Regular, Fine, and *Crystal* are nondusting and have uniform thickness. You can order the new drum in 400- and 450-pound sizes. Our 100-pound drum has a 10-inch opening.

Want to chlorinate or sulfonate?

In many cases you'll find it's easier and safer to work with Hooker sulfuryl chloride or thionyl chloride than with elemental chlorine or sulfur.

To our best knowledge, we alone manufacture these chemicals in commercial quantities. Both make excellent chlorinating agents. Either may be used to introduce sulfur or oxygen and sulfur.



Hooker sulfuryl chloride is 99+% pure. You can get Hooker thionyl chloride in two grades. The technical is 93% pure (min.); the refined is 97.5% pure (min.).

Two simpler chlorinating agents

You can also purchase sulfur monochloride and sulfur dichloride from us. The monochloride (technical grade) has a chlorine content of 52 to 52.5%. The dichloride is 66% chlorine.

You can get complete technical data on any of these compounds by checking the coupon.

13 ways to buy Nialk® Caustic Potash

If you're using caustic potash at all, you're probably using the liquid form, 45% to 52% strength. This is the most popular choice by far, since it's easiest to use and store in bulk quantities.

However, for those jobs where you require a different form or grade, we offer you these 12 alternatives as well:

Solid; flake; granular; broken; crushed; powder; walnut—all at 90% strength.

Solid and flake, at 85% strength. Liquid, low-chloride—45%.

Solid, low-chloride; flake, low-chloride—both 85%.

This variety of forms is just one of many reasons why NIALK is the most popular of all brands of caustic potash, accounting for almost half the tonnage sold in this country.

For complete specifications on all 13 forms and grades, and for a bulletin that describes our manufacturing and shipping methods, check the coupon.

For more information on chemicals mentioned here, check below:

- ☐ Caustic Soda
- ☐ NIALK Caustic Potash
- ☐ Sulfuryl Chloride
- ☐ Thionyl Chloride
- ☐ Sulfur Monochloride
- ☐ Sulfur Dichloride
- ☐ Chlorinating Agents (Bul. 328A)

For information on these other Hooker chemicals, check below:

- ☐ Benzyl Chloride
- ☐ Benzoyl Chloride
- ☐ NIALK Carbonate of Potash
- ☐ Muriatic Acid

Clip and mail to us with your name, title, and company address. *When requesting samples, please use business letterhead to speed delivery.*

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663W24

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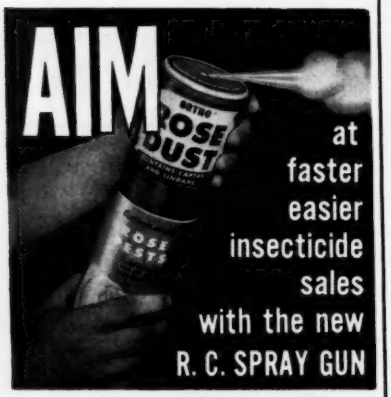

- New Directional Vent — any direction, including upright.
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- Coated Inner Tube — Waxed coating improves pumping action.
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WRITE for prices and further details.

R·C·CAN COMPANY

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Rittman, O., Turner, Kan.; Arlington, Tex.; St. Louis, Mo.

basic research to expose new facts from which there can be practical developments in the field of fluorine compounds." None of those made so far (including the one stable at 700 F—the structure of which cannot be divulged prior to patent application) fulfills his goal.

Even if a suitable compound turns up, Teller and his associates face another stumbling block—the high cost of synthesis. Processing costs based on present laboratory techniques are excessive, Teller feels, because of corrosion of equipment and high material costs. To solve this end of the problem, the researchers are working on better processing techniques, more economical sources of fluorine. One hope for reduced processing costs has been raised by development, at the university, of fluorine exchange catalysis via exchange of F^{18} between metallic fluorides and gaseous fluorine compounds.

Teller believes that a drop in the price of 70% hydrofluoric acid from 19¢ to 10¢/lb., and a reduction in the cost of fluorine to nearer 25% of its present price would not only stimulate research in new fluorinated compounds but also vastly widen the markets for existing ones.

Right now, the fluorine project is being sponsored by the Office of Naval Research. Any patentable discoveries will become the property jointly of the University of Florida and ONR. But there are signs that the research —started at the university in 1950, with Minnesota Mining as a sponsor, and Simons alone on the project— will be getting additional sponsors soon.

Cash In on Research

With "Research for Profit" as its theme, the second National Industrial Research Conference drew over 500 industrial executives to its two-day meeting in Chicago recently. The Armour Research Foundation of the Illinois Institute of Technology, sponsor of the conference, had on hand 12 prominent executives to speak on such subjects as research efficiency, the scientific manpower shortage, relationship of sales to research, and making waste products pay.

• "Nothing is more destructive to laboratory morale than letting men struggle to produce something that is then discarded as being of no value," stated C. F. Rassweiller, Johns-Manvilles' vice-president of research and development. In his talk on selecting research objectives, Rassweiler emphasized that the primary step in determining a technical objective is to decide what the end-product will do rather than what it will be. This philosophy, he said, will be advantageous not only as a basic research approach but also in the follow-through of market research, market development and sales.

• Business responsibilities of industrial research were covered by E. Duer Reeves, executive vice-president of Esso Research and Engineering Co. He lists knowledge, creation and effective usage of technology, efficient internal operations and effective coordination with management as the five major business responsibilities.

• "Waste products are materials that temporarily have not been turned to profit" was the idea presented by Victor Conquest, vice-president of Armour & Co., research division. "Following this logic," he maintains, "will eventually create the incentive to encourage research to attempt to upgrade the material to at least a by-product if not a key value product."

• The premise that American industry and universities must join in a cooperative effort to produce more researchers of a higher caliber for the future was presented by John T. Rettaliata, president of the Illinois Institute of Technology.

PRODUCTS

Sesquiterpene: Three sesquiterpene fractions consisting primarily of β caryophyllene are available for the first time commercially from Glidden Co.'s Southern Chemical Division (Jacksonville, Fla.). They're of interest to fine-chemicals makers, are graded as 90%, 75-50%, and "crude caryophyllene."

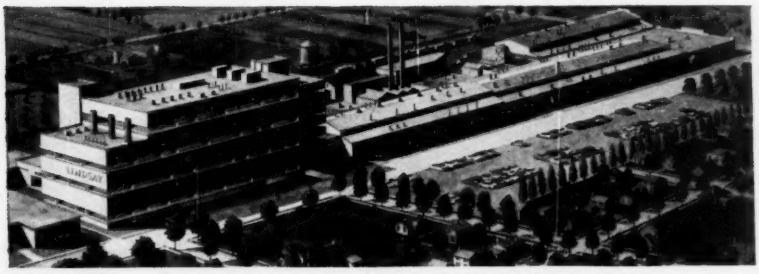
•

Atomic Alkaloid: Gramine-C-14 has been added to the list of radioactive carbon-14 compounds available from the Nuclear-Chicago Corp. (Chicago). The radioactive alkaloid is expected to be useful in preparing tagged tryptophan, studying tryptophan chemistry and physiology. Price: $340/millicurie.

Want a Carload of Rare Earths?

They're available for prompt shipment in a gram to a carload

a report by LINDSAY



Back in the early 20's, it would never have occurred to us that in a few years we would be shipping rare earth salts in carload quantities for a surprising variety of chemical and industrial applications.

For a long time, as you may know, the rare earths were simply a by-product of our regular business of producing thorium nitrate for gas mantles. Up to 35 years ago, rare earths were little more than scientific curiosities. Industry had not yet discovered them as a practical scientific tool.

But, as time sped by, we learned more about these unusual elements and how to produce them in larger quantities, in higher purities and at lower cost. And with their increasing availability, industry began to find ways to use them profitably in their operations. In the last ten years, we've seen a sharply increasing rise in the demand for rare earths from a rather amazing variety of industries.

WHY THIS DEMAND? Well, as we see it, it's due largely to the enormous technological strides made since World War II. Industry itself sparked much of this interest by its own explorations of the rare earth group in a search for materials to improve products and processes. Their studies in relation to specific problems often uncovered totally unsuspected applications. It was a sort of chain reaction that is still increasing in velocity.

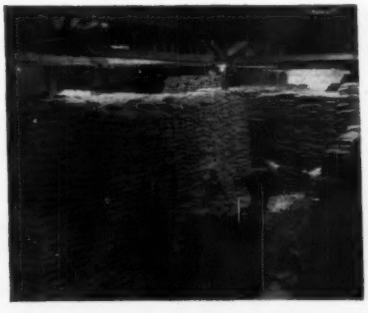
LINDSAY BUILT NEW PLANT. We saw what an industrial revolution the rare earths were creating. And anticipating heavy demands, we constructed our modern plant in 1953. The Lindsay plant facilities, including more recently developed and improved separation processes (such as our ion exchange systems), increased our production capacity manyfold.

WHAT ARE THE RARE EARTHS? Rare earths are *not* rare—nor are they earths. This group of 15 elements (atomic numbers 57 through 71) are trivalent metals found together with thorium and yttrium primarily in monazite ore. In chemical properties they are almost identical, a fact which makes them difficult to separate and at the same time makes them valuable tools for research and industry.

HOW THEY ARE USED. The fascinating description of industrial applications of the rare earths would fill many books. We work with these materials every day and we're constantly amazed at the variety of ways in which they're used. Here are only a few. Glass polishing. Steel additives. Catalysts. Colorizer and decolorizer for glass. Medications. Ultra-violet light absorber. Arc carbon electrode cores. Aluminum and magnesium alloys. Lighter flints. Radiation-proof glass. Waterproofing. Textile production. Color TV tubes . . . and the list goes on and on.

RARE EARTH SALTS. Lindsay produces rare earth salts in large tonnages and in varying purities. Most of them are surprisingly low in cost. Rare earth chloride—for example—a mixture of several of these elements—is only about 25¢ a pound and available in virtually unlimited quantities. High purity separated rare earths are, of course, more expensive, but economical in relation to the wonders they perform.

HUGE SOURCE OF SUPPLY. To keep up with the demand and assure industries of a steady supply, we maintain in our plant a stockpile of monazite that is now 24,000,000 pounds. And we're constantly prospecting in various parts of the world for this miracle ore—source of the versatile rare earths.

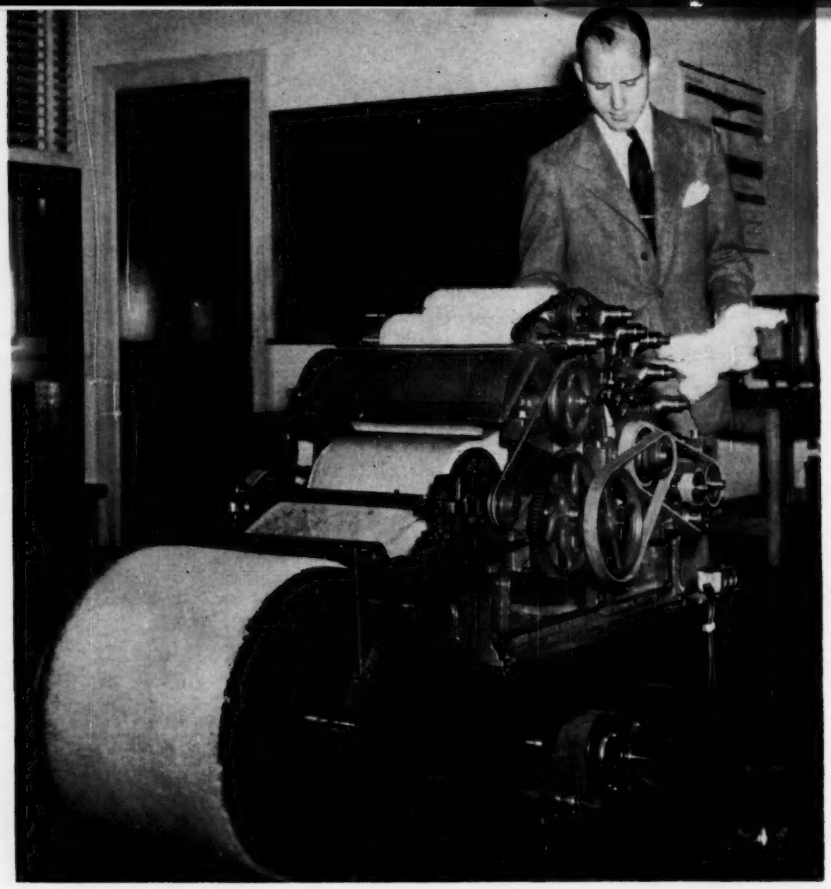


WORTH INVESTIGATING. Your research people may find it rewarding and profitable to study the possibilities of the application of rare earths to your own products and processes. We will be happy to supply pertinent data and to make available to you the help of Lindsay's technical staff.

PLEASE ADDRESS INQUIRIES TO:

LINDSAY CHEMICAL COMPANY

270 ANN STREET • WEST CHICAGO, ILLINOIS



First step in feltmaking is carding batts of predetermined weights. American Felt's president, William Lehmberg, inspects lab experimental samples.

Synthetic Felts Prime for Process Uses

One wool stronghold, feltmaking, is finally feeling the impact of synthetics. Behind this trend are many man-years of research, new techniques of interlocking the slippery man-made fibers, turning them to specialized uses.

Felts made of cellulose acetate, nylon, viscose—even metal (*CW Technology Newsletter, May 4*)—are possible. And acrylic, polyester and tetrafluoroethylene felts are now commercially available.

A couple of leaders in this research: Du Pont's textile fibers department, sole commercial source of the tetrafluorethylene (Teflon) felts, and the American Felt Co. (Glenville, Conn.). The latter firm, scene of the accompanying photos, accounts for 43% of U.S. felt production.

This week, *CW* got a line on the neophyte textile material's future from Thomas Gillick, Jr., manager of American Felt's engineering and research lab.

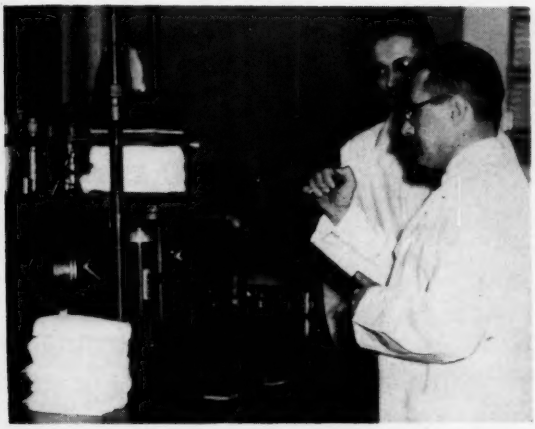
Gillick sees the biggest field for the new felts in applications that make use of their superior chemical resistance and durability. Right now, that means in gas and liquid filtration—in chemical manufacturing, air purification and food processing. But markets are shaping up for the new felts in wicks, seals, lubricating cushions, etc.

For such uses, felts must be tailormade, have appropriate density, composition. In researching toward this end, Gillick likes to think of the fibers as "minute I beams, materials of construction," calls the work "fiber engineering." Felts of this sort aren't to be confused with nonwoven fabrics (*CW, May 8, '54, p. 48*), which require resin or thermoplastic-fiber bonding agents. However, true synthetic felts may be impregnated after they are formed (e.g., a Dacron felt with Teflon) to secure desired properties.

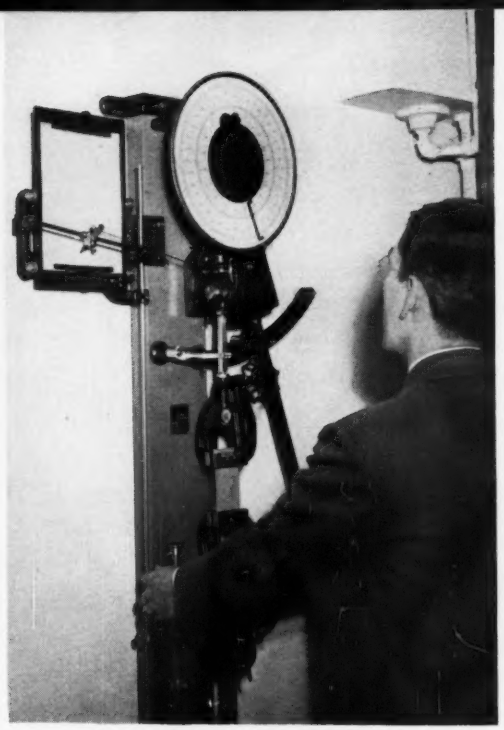
American Felt is pressing research on felts that are formed by mechanical means—entanglement of the fibers by passing fiber batts through a needle-punching machine—followed by chemically induced shrinkage of the fibers. This technique permits closest approximation of the structure of wool felts.

Other synthetic felts can be made by merely interlocking the fibers on, or independent of, a woven fabric foundation. Last year, the firm made more than 1,000 types of experimental synthetic felts, currently has a good percentage of them under evaluation. It is presently working with Union Carbide on an "experimental polyethylene fiber" felt for filter press cloths, also has an "all-protein fiber" felt under study, reports it has unusually high oil absorption properties.

Gillick sees a big future for the new felts in the chemical process industries because of their long life, low cost.



Batts are plied to desired weight, heat-bonded.

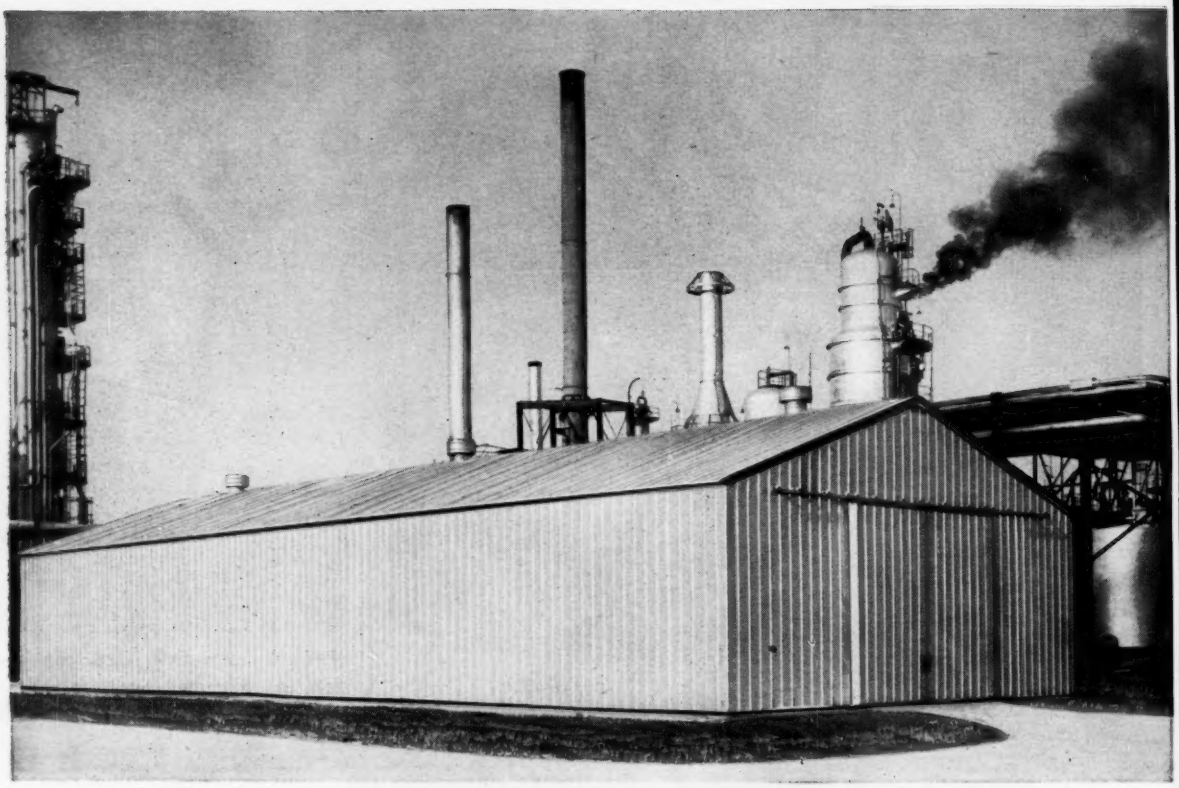


Breaking strength and elongation are key felt properties.

Carbon tetrachloride extraction turns up felt residues.

Coefficient of friction is tested.

Lab manager Gillick (right) eyes felt-cutting, shipment.



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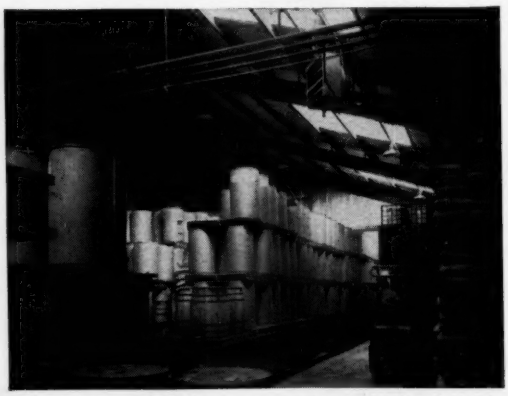

Butler's clear span interior—no posts, no trusses—and straight sidewalls provide maximum usable space. Translucent Lite * Panls in insulated roof flood interior with light, cut illuminating costs.

Market
Newsletter

CHEMICAL WEEK
May 11, 1957

While there's little news this week concerning price changes of broad market significance, the trade is hearing a lot about new plant capacity startups. Additional material coming into the market underscores earlier predictions that chemical consumers would face few shortage worries during '57.

Total U.S. phthalic anhydride capacity takes its second jump in less than two months, with Pittsburgh Coke & Chemical's start of operations at its Neville Island, Pa., plant after a $3-million expansion. (The other was Monsanto's 60% capacity increase at Everett, Mass. (*CW Market Newsletter, March 23*).

Latest word from PCC doesn't mention the quantity of phthalic its installation can make now; but when news of the expansion was first reported (*CW, Sept. 3, '55, p. 71*), a doubling of capacity pegged the target at 30-35 million lbs./year.

The new plant, built and engineered by The Lummus Co. and said to include a number of unique features, was tied in with existing phthalic facilities at Neville Island without serious interruption of production schedules.

More plasticizers are also being made available. Dudley Clapp, president of Deecy Products (Cambridge, Mass.), tells *CW* his company has put into production—as part of an expansion program—new plasticizer manufacturing units that will up the firm's capacity by some 12 million lbs./year.

Also in the plastics field: Chemical Processing's (Redwood City, Calif.) reported tripling of production capacity for making polyester resins and a new isophthalic resin.

The firm, manufacturer of "Dion"-named products, says the expansions were necessary to meet the "substantial increase in demand for polyester resins used by Western producers" who make boats, panels, trays and other plastic products. The new Dion isophthalic resin will be made at the enlarged facilities, will be aimed at outlets making "stronger, tougher products than presently possible with conventional resins."

•

Price-cutting of domestic vitamins late last week spelled out a tale for market observers: producers' hopes that vitamin prices would tumble no farther were shattered. Earlier this year, though, some manufacturers indicated that if the rough competitive situation with foreign material continued, they would "wield the price-cutting pencil again" (*CW, Feb. 9, p. 75*).

Two major synthetics of the B complex have just been slashed about a third, bringing prices to all-time lows. The items: thiamine hydro-

chloride and riboflavin. The reduction in the former (vitamin B_1) establishes the price at $40/kilo; on USP riboflavin (B_2) down to $40/kilo. The ribo takes a $25/kilo slash.

Thiamin mononitrate was also drastically reduced (by $22/kilo), to a similar $40 level.

The latest moves may well set the pharmaceutical trade boiling again, as it frequently has when the elbowing for markets has been sharp.

Trichlorethylene is said to be feeling pressure from a continuing flow of low-priced foreign material hitting the domestic market. U. S. sellers list l.c.l. tags at 15¼¢/lb. (delivered in the East), while imported stuff, for the most part, is reportedly being offered at about ½¢/lb. less. Some lots reportedly are being sold at a full cent under domestic prices.

Generally, demand for trichlor is fairly good, especially for use in metal degreasing operations; thus, the current foreign-domestic tussle will probably have little impact on the over-all market situation.

•

Will the government soon stop buying lead and zinc for its strategic stockpile? That's the vital question being discussed these days in the country's metal markets. Marketers—and a number of interested congressmen—are concerned since government buying has been the chief reason zinc prices have been maintained at 13½¢/lb. (E. St. Louis) for more than a year. If the props are withdrawn prices will likely drop.

Minimum stockpile objectives on both metals are said to have been achieved, but Washington will continue to buy, says stockpiling boss Gordon Gray. (He heads the Office of Defense Mobilization.) There have been statements by other officials that the purchasing program on some metals—including zinc—will soon be ended.

Civilian consumers of nickel will have more made available to them, Gray also indicated last week. There'll be no stockpile purchases of the critical metal through the end of the year. Earlier, ODM had indicated that it wouldn't call for any nickel through June, but the latest word means that the government will be out of the market all year.

SELECTED PRICE CHANGES — WEEK ENDING MAY 6, 1957

	Change	New Price
UP		
Dibutyl tartrate, dms., wks., frt. alld.	$0.015	$ 0.655
Manganese sulfate, fertilizer grade, 65% Mn., bgs., dlvd. SE, ton	8.89	97.50
DOWN		
Riboflavin, USP, fib. dms., kilo or more, dlvd., kilo	$25.00	$40.00
Riboflavin-5-phosphate, sodium, fib. dms., kilo or more, dlvd., kilo	17.50	107.50
Thiamine hydrochloride, USP, reg., fib. dms., kilo	20.00	40.00
Thiamine mononitrate, USP, fib. dms., kilo	22.00	40.00

All prices per pound unless quantity is stated.

TOMORROW'S PRODUCTS TODAY...THROUGH ENJAY PETROCHEMICALS

Basic raw materials for VINYLS that add new style to lightweight luggage!

Colorful, lightweight luggage is now made with vinyl—and the demand is great! The current large use of vinyl plastics has placed increasing importance on the quality of the plasticizers used in these products. Naturally, manufacturers want the best.

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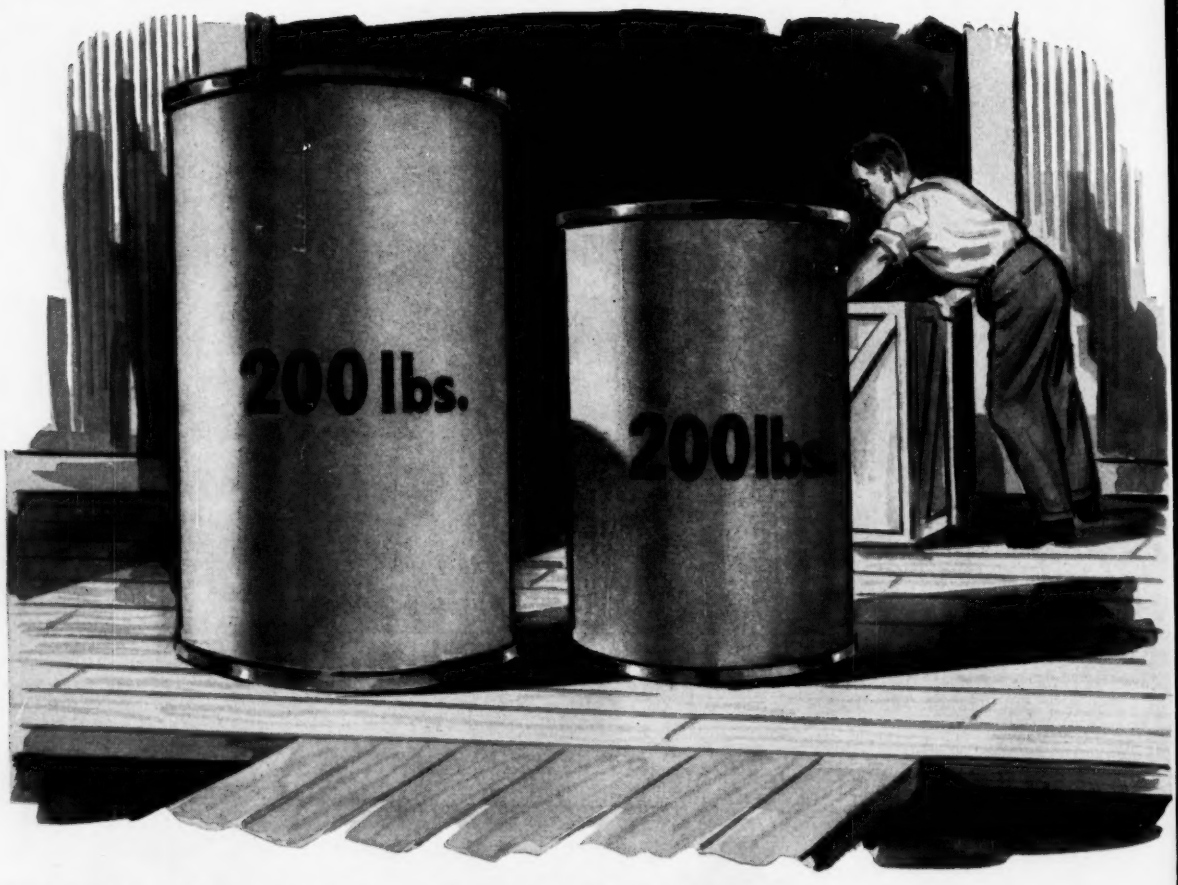

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MARKETS

RED CHINA'S 'CAPITALISTS'

This Year, They'll Import $100 Million Worth of Chemicals

(turn the page)

This year, Red China will buy more than $100 million worth of chemicals from the free world:

Among the leading sellers:

- West Germany will ship close to $30 million worth
- Japan—at least $28 million
- Belgium-Luxemburg—more than $16 million
- Italy—possibly $10 million
- France—about $4 million
- England—close to $3 million

Red China Trade: Big and Getting Bigger

The sales of chemicals to Red China —a real piece of business in anybody's book—point up the importance to chemical producers of the continuing controversy over trade with China.

It's a point of special importance today, as the U.S. and other nations are about to sit down in Paris to negotiate changes of free-world controls on trade with Communist China. The probable outcome: a loosening of trade rules to bring them pretty much into line with the much more liberal controls on trade with Russia and the European Communist bloc.

Now that it is evident that a significant broadening of the rules is undoubtedly in the cards, how big, really, is this trade? How can it be expected to grow as the once-owners and now managers of China's businesses (*see p. 97*) continue the country's industrialization? How can such trade intensify the over-all competition?

Germany Out Front: Germany, today, leads in value of chemical exports to the Peiping government. Chemical manufacturers in the pro-West republic regard China as a still largely undeveloped market—despite the fact that China this year will purchase close to $30 million worth of German chemicals. These purchases —mostly fertilizers, organics and chemical intermediates—will represent 33% of all shipments to China; four years ago, chemicals represented only 12%.

China is Germany's biggest fertilizer customer; this year, it will buy some $13 million worth. During '53, the value of fertilizer shipments was only about $1 million. Fertilizer producers in Germany insist that this spectacular growth is no "flash-in-the pan," expect future orders to maintain or even exceed that level.

Organic chemical exports, on the other hand, have suffered a severe setback. Last year, China spent about $3 million for German organics, just about half the $6.4 million it spent in '54. Why the drop? Explains one German manufacturer: "China can't afford to pay for such expensive items, even though she needs them badly."

Another important export, drugs and pharmaceuticals, appears to be making a comeback after being slapped down by growing Japanese competition. In '54, medicinal shipments to the China mainland hit a $3-million value, only to plunge down to $800,000 the following year. During '56, however, such exports inched upward to $1 million, and medicinal producers hope that shipments will soon grow to again reach $3 million.

German plastics exports to Red China amounted to about $500,000 last year, and producers are certain that China's needs for these chemicals will increase. Rayon demand also has grown; but here again, limited funds and high prices have hindered the Peiping government from purchasing more.

Meanwhile, to further greater trade interest between the two countries, a German trade delegation, headed by the president of one of the largest chemical houses, is expected to visit Communist China shortly. The trip may well result in a sizable increase in future business with China. It's needed, some German producers tell *CW*, since, under present conditions, trade with the Peiping government has apparently reached a peak. They state that the Chincom list (i.e., the list of commodities on which the free world would agree could be sold to China) is outdated, having been drawn up during the Korean War. In order for German trade with China to increase as rapidly as it has over the past few years, this embargo list must be altered considerably.

Another factor that avid German proponents of more trade with China stress are long-term credits. These extended credits, they report, have been an effective bartering weapon used by Japanese businessmen to cut into Germany's chemical trade with China. Furthermore, they insist, such financial arrangements are necessary to successfully buck growing Japanese competition.

Up Comes Japan: In the diplomatic

CHEMICALS OUTLOOK

May, 1957

This news bulletin about Wyandotte Chemicals services, products, and their applications, is published to help keep you posted. Perhaps you will want to route these and subsequent facts to interested members of your organization. Additional information and trial quantities of Wyandotte products are available upon request . . . may we serve you?

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Then, there are Michigan's versatile workers and leaders — men who are adaptable, who can envision the future, whose skill can help build for tomorrow. For in its striking quest for progress — in its fast expressways, in its plans and preparations for the St. Lawrence Seaway — Michigan shows its strength.

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Red China's Imports From Six Leading Chemical Producers

(million dollars)

	Organics	Inorganics	Coal-tar dyestuffs	Drugs	Fertilizers	Others	Total
1953	3.3	1.1	2.0	3.3	5.6	0.3	**15.6**
1954	11.5	3.8	6.1	10.0	10.5	2.3	**44.2**
1955	13.9	2.7	8.1	6.7	29.1	5.4	**65.9**
1956	7.6	1.9	2.9	5.0	47.0	14.4	**78.8**

1956, CW estimates

Sources: 1953-55, International Economic Analysis Bureau, Bureau of Foreign Commerce.

scramble to snare China's potential market, Japan has been a consistent leader. This year, total chemical exports are expected to reach $28 million, putting Japan a close second to West Germany as the top chemical seller to the Peiping government. It's a dramatic contrast with the situation as recently as '53, when Japanese chemical exports — coming to only about $1.8 million—lagged far behind other countries.

The tremendous jump reflects a surging Japanese interest in recapturing China's trade, bring it up to prewar days when China was Japan's biggest customer for raw materials and finished products. During '56, some 60 Japanese trade delegations—representing various industries, including chemicals and allied products —visited China. These "goodwill" tours resulted in a variety of signed trade agreements. There are indications of more to come.

One such agreement covers an additional 250,000 tons of fertilizers for delivery in '57. This is only the beginning. Today, fertilizers constitute the biggest bulk item going to the mainland. Indicative is the size of last year's shipments, valued at $14 million; significantly, in '53, the value was about $1 million. While nitrogen and phosphorous products are leaders in the fertilizer group, urea demand is expected to increase at a fast clip. Reason: relatively low price tags on the material.

Pesticides are also slated to up total Chinese-Japanese trade. Last year, Japan shipped to the Communist market nearly 3 million lbs. of various insecticides, disinfectants and fungicides; four years ago, the amount totaled just about 1,000 lbs. Japanese pesticides makers surveyed by *CW* are confident that these items will loom large on China's future shopping lists.

Medicinals rank high among chemicals much in demand by Red China. This year, pharmaceutical exports from Japan are expected to match the record achieved in '54, when shipment values amounted to about $2.8 million. (One interesting note: while quantities of basic antibiotics have fluctuated since '53, vitamin shipments have been growing steadily. Last year, 10,000 lbs. were purchased by China; during '53, only 3,400 lbs.)

Synthetic textiles, while also in great demand, are subject to stiff restrictions by the Peiping government. In '56, Japanese shipments, for example, were valued at $3.2 million. This was a sizable drop from the previous year's purchase of $4.6 million, but it's still a hefty jump over '53's $2.6 million.

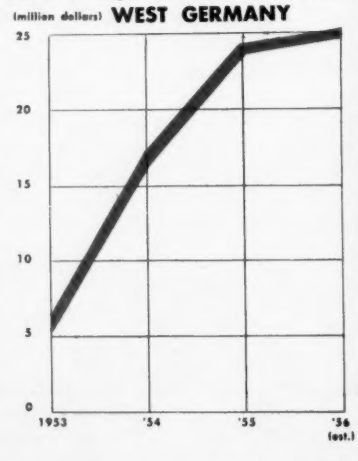
On the other hand, inorganic exports have been dropping steadily over the last three or four years. Last year's exports totaled about $700,000, a considerable decline from the $2.1 million sold in '54. Because of the reported shortages of inorganics in China today, however, Japanese producers expect a sizable pickup, perhaps to '54's high level. Some shippers, though, believe that this would be the maximum that China would be able to buy in the immediate future.

Organics shipments fell off sharply last year, compared with those in '55. Shipments went from 700,000 lbs. to a little more than 200,000 lbs. in '56. Japanese chemical company officials told *CW* reporters that "exports would likely remain at this reduced level." Why? Organics, in some instances, are a little high-priced for Chinese budgets. Ditto for intermediate dyestuffs. These nose-dived from $3 million in '55, to approximately $300,000 this past year.

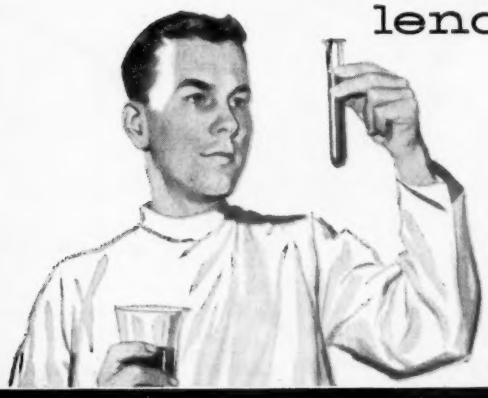
Although there is no official indication that the present Japanese government is anxious to recognize Communist China, officials and businessmen there hailed the U.S. stand approving a cut in trade barriers between Japan and the Peiping government. When this restriction is lifted, Japan's exports should climb to an all-time postwar high.

Off for Britain: British chemical

Chemical exports to Red China from:



TENNESSEE chemicals lend a helping hand...



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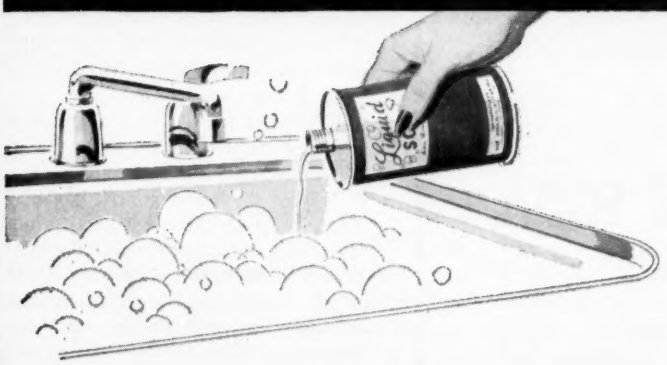

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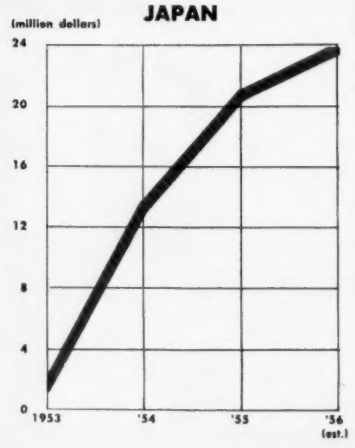

manufacturers, on the other hand, are not too happy about present trade conditions with China. Last year, chemical shipments plunged 40% below the previous year's value—$3 million vs. $4.9 million. While some producers attribute this drastic dropoff to the unstable Chinese economic conditions, the majority of chemical representatives point to stiffening Japanese competition as a more direct cause.

Drugs and pharmaceuticals, Britain's most important exports, suffered dramatic cutbacks last year. In '56, medicinal exports were valued at about $1 million and were 33% of all chemical exports to China. The previous year, pharmaceuticals exported were valued at $2.3 million, or nearly half the total British chemical shipments to the Chinese Reds.

During the same period, organics fell from $800,000 to $500,000, while inorganics settled at a worrisome level of only $200,000. The downward trend is causing concern among Britain's chemical sellers who see themselves being slowly elbowed out of a fertile chemical market.

Spokesmen for the hard-pressed chemical industry, as well as other representatives were voluble in pointing out to *CW* reporters that "easing present curbs on Red China trade would prove a boon to the present shaky economic condition" in England. Under a more liberal trade agreement, it is believed, total exports to China could soar as high as $70 million/year, of which one-fourth would represent chemicals.

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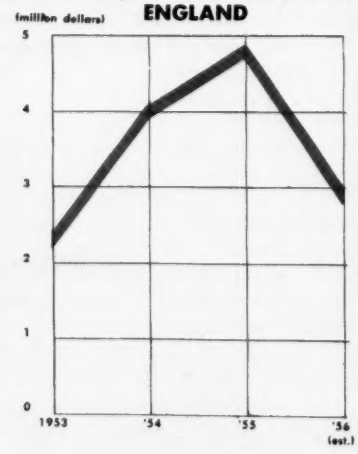
other nation whose chemical exports to the China mainland have suffered. Last year's chemical shipments were valued at $3.8 million, considerably under the $6.6 million reached in the peak year of '54. Interesting sidelight: while French chemical shipment values have decreased, chemical shipments as a percent of total exports have been growing. During '54, chemicals represented 26% of total supplies; last year, trade estimates peg chemicals as 55% of total shipments.

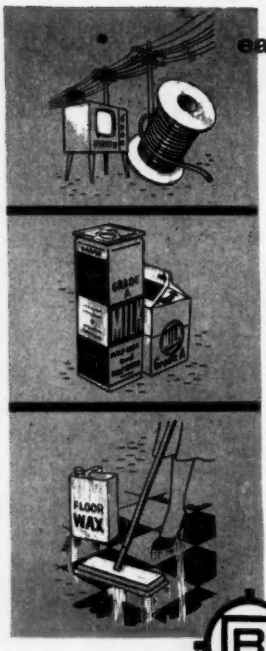
In '56, organics were the most important chemical group shipped from France to China. This is a somewhat surprising development, since fertilizers headed the list in '54, when the latter comprised 50% of French chemical shipments. French fertilizers have declined in proportion to increased deliveries to China by other countries including Germany, Japan and Belgium.

Combo Near Top: Belgium and Luxemburg together rank third in the lineup of free-world chemical traders with Peiping—last year their total shipments passed the $15-million mark. Of this, 93% were fertilizers. Last year, the New China news agency announced "the biggest single fertilizer contract in history" when the China National Import and Export Corp. purchased some 425,000 tons from a Belgian fertilizer distributor. Another important agricultural export was copper sulfate—it just about touched a $1-million value.

And how does future chemical trade look? Belgian manufacturers, as do most European chemical shippers, hope that trade with Red China

Chemical exports to Red China from: ENGLAND





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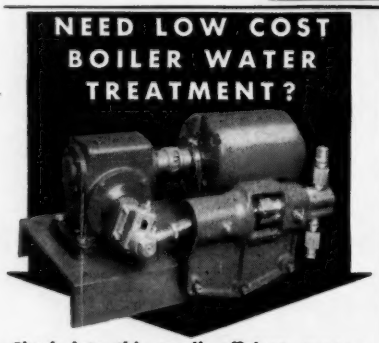

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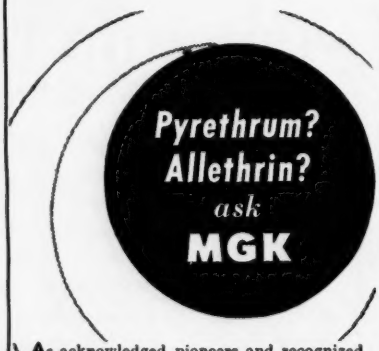

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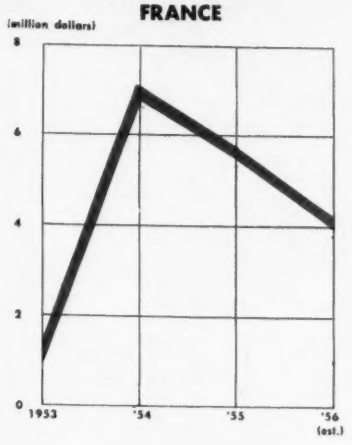
Chemical exports to Red China from: FRANCE



will become more substantial.

Italy Goes 'Legitimate': The Italians have begun to develop a lively "legitimate" trade with China's mainland. Last year, Italy exported more than $8 million worth of chemicals, the largest item being fertilizers, which made up 70% of the shipments. Total value of chemicals sent to China in '53 was $2.9 million. Other important chemicals purchased by the Peiping government last year were organics ($900,000), synthetic fibers ($500,000), pharmaceuticals ($300,000). In spite of strong Japanese competition (in prices and speed of delivery), a chemical company official anticipates chemical exports will increase as much as 15% within the next year. Meanwhile, it is known that Montecatini is planning to expand present capacity of certain chemicals to take care of increased China requirements.

While the Italian government adheres strictly to the U.S. "check list," it is no secret that at least one big private exporter-importer carries on a brisk business via third parties in statellite Europe, mainly Czechoslovakia.

Other nations, too, are taking lucrative pieces of Red China's growing chemicals import requirements. In 1956, for instance, Austria shipped well over $5 million worth; the Netherlands, close to $4 million; Canada, about $3 million; Denmark, more than $2 million.

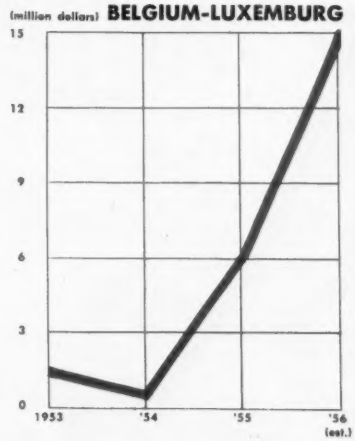
But while many countries profess to abhor outright, front-door trading with Red China, it's a fact that many aren't adverse to using the back door. "Embargoed" chemicals are not only being shipped to China via eastern Europe but also a large amount is pushed through British Hong Kong. The so-called free-world dam against certain exports to Communist China, in any case, appears to be leaking badly. And that's the nub of the argument being used by some proponents of trade with China that the floodgates might just as well be opened officially. It's a rhubarb that may be raging for some time among the world's chemical producers and sellers.

Bowing to Demands: The U.S. really has no choice but to go along with the trend toward weaker control on trade with China. All the European countries and Japan are determined to expand their trade with Red China and have made it clear that they will do so whether the U.S. approves or not.

So the real alternatives for Washington are to bow to the trend and thereby retain at least a common free-world approach to trade with China as well as the machinery for keeping some control over this trade—machinery that could be tightened up if the cold war climate changed for the worse—or to stick to a rigid position on China trade controls and see the distintegration of the whole control system built up since the end of the war.

For now, at least, U.S. trade won't be affected. But though the U.S. total embargo on China trade will continue to be enforced, American chemical makers will continue to be tantalized by the potential future sales to China.

Chemical exports to Red China from: BELGIUM-LUXEMBURG



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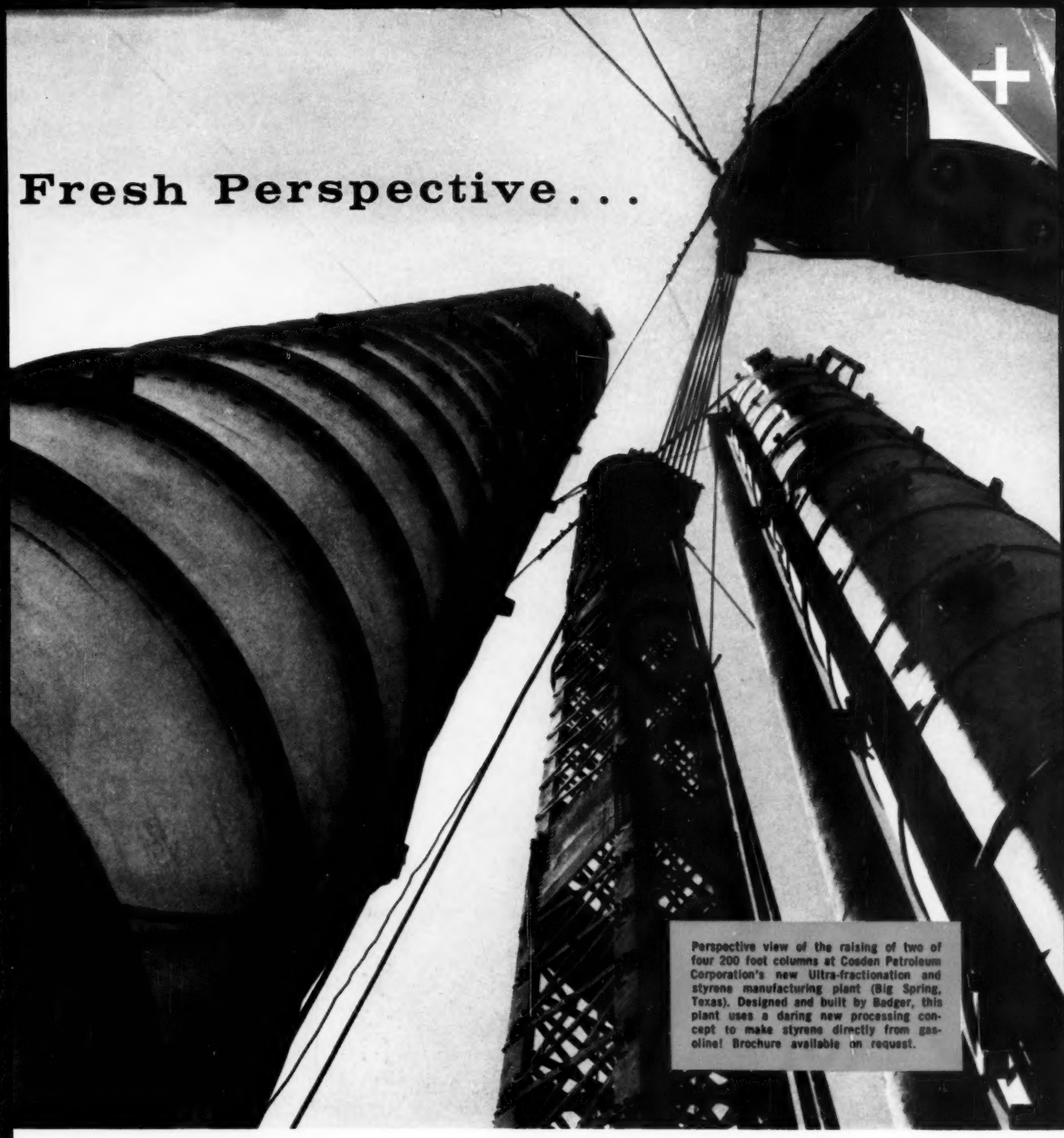

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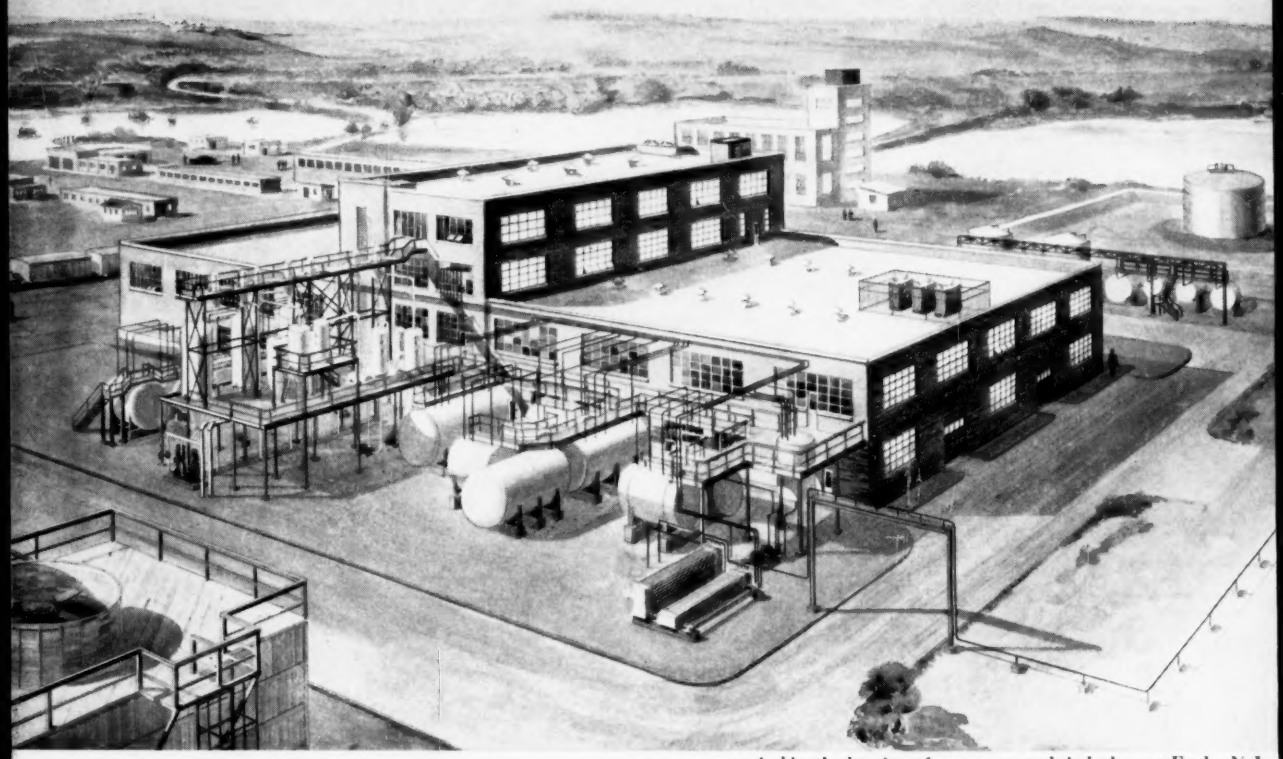

Architect's drawing of new pentaerythritol plant at Fords, N.J.

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